DOCUMENT RESUME

ED 266 302 CE 043 605

TITLE	Data Processing Secondary. Curriculum Guide.
INSTITUTION	Georgia Univ., Athens.
SPONS AGENCY	Georgia State Dept. of Education, Atlanta. Office of Vocational Education.
PUB DATE	85
NOTE	375p.; Some pages may be marginally legible due to small print.
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF01/PC15 Plus Postage.
DESCRIPTORS	Admission Criteria; Behavioral Objectives; Check Lists; *Competency Based Education; Criterion Referenced Tests; Curriculum; *Data Processing; Educational Facilities; Evaluation Criteria; *Instructional Development; Job Skills; Learning Activities; Lesson Plans; Occupational Information; *Office Occupations Education; Program Content; Secondary Education; *Statewide Planning; Student Recruitment
IDENTIFIERS	Georgia; Special Needs Students

ABSTRACT

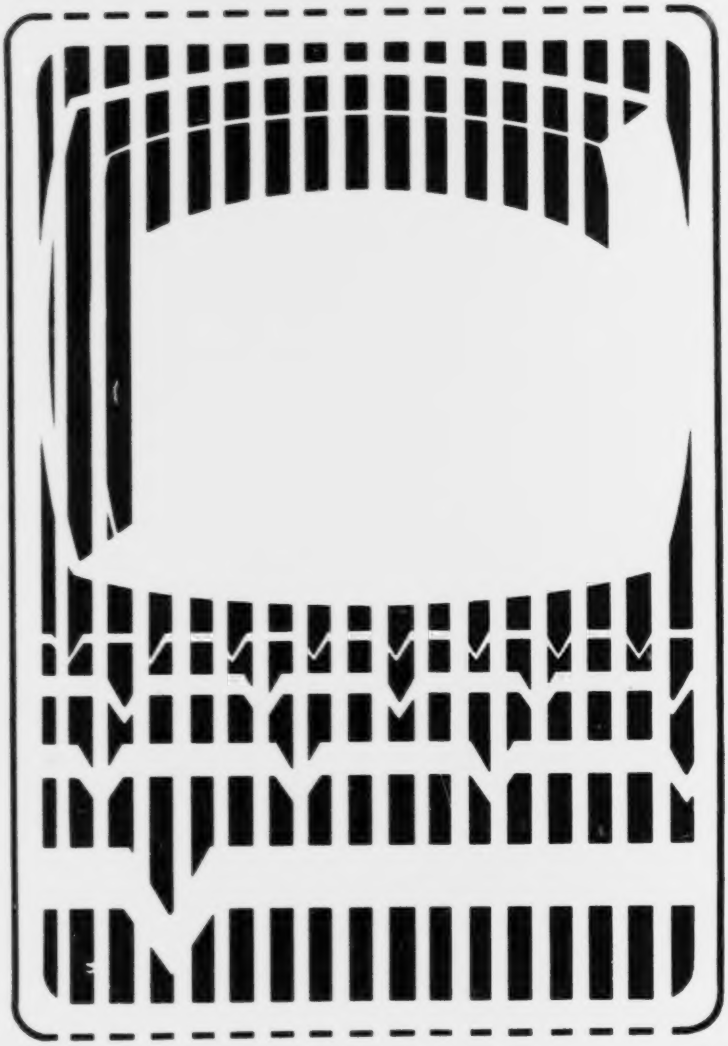
This guide is intended to assist teachers organizing and presenting a course in data processing for secondary school students. Addressed in the individual sections of the guide are the following: the philosophy, purpose, and objectives of the course; admissions and recruitment; occupational information; employability skills; tasks addressed in the data processing curriculum; curriculum structure and content; facilities; special needs; and instructional management. The section on curriculum content includes a series of unit guides, each of which contains some or all of the following: a task or unit competency, a performance statement, suggested instructional activities, recommended instructional materials, estimated minimum times for completing instructional activities and evaluations; and evaluation criteria and activities. The section on instructional management information includes information on criterion-referenced testing and Georgia performance standards for graduation. A glossary concludes the guide. (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

GA 8513301

ED266302

DATA PROCESSING
SECONDARY



U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CE 043605

Georgia Department of Education

Developed and Produced
Under Contractual Agreement with

Program Improvement and Evaluation
Office of Vocational Education
Georgia Department of Education
Atlanta, Georgia 30334
Charles McDaniel, State Superintendent of Schools
1985

DATA PROCESSING CURRICULUM GUIDE

UNIVERSITY OF GEORGIA PROJECT STAFF

Rhonda Hefner Packer	Project Coordinator/ Principle Curriculum Developer

CONTENT SPECIALISTS

Janet Adams	Jackson County High School
John W. Arena, Jr	Augusta Area Technical School
Bobbie Chance	McIntosh High School
Joy T. Cox	Henry County Senior High School
Mike Drummond	Tift College
Janice Justice	Gwinnett County Career Center
Aurelia Stone	Evans High School
Karen Vaughan	Etowah High School

CURRICULUM ADVISORY COMMITTEE

Charlotte Bjork	Citizens and Southern Bank
Jim Clarke	Fulton County Schools
Richard Dreischel	Cherokee High School
Barbara Goda	Life Insurance Company of Georgia
Margaret Gregory	DeKalb County Schools
Helen McClain	Georgia Department of Education
Rhonda Hefner Packer	The University of Georgia
Marcia Pope	Carrollton High School
Frances Roberson	Cobb County Board of Education
Terry Smith	Georgia Department of Education
Patt Stonehouse	Georgia Department of Education

PRODUCTION STAFF

Missy Quarles   Larry Autry   Vellon McClain   Lacretia Arthur

A special thanks to Michele Dent and Rufus Knowles of the Vocational Curriculum Center for their graphic contributions.

PURPOSE AND UTILIZATION OF THE CURRICULUM GUIDE

The purpose of this curriculum guide is to provide a suggested model for organizing vocational instructional content. In many cases, more material is available than may be needed; therefore, an instructor will need to adapt the content to meet his/her program needs.

While the guide is primarily oriented towards the classroom, whether as a primary resource or as a supplement to other teaching materials, it also assists administrators, counselors and lay people involved in local school systems. The following outline provides an overview of the various ways these groups may utilize the curriculum guides.

Vocational Teacher

* Provides a guide for organizing their program of instruction,
* Assists in establishing program objectives,
* Serves as a curriculum materials resource guide,
* Improves communications with employers and advisory committees,
* Facilitates competency-based instruction,
* Facilitates either group or self-paced instruction, and
* Includes content by quarter and semester.

Vocational Supervisors and Administrators

* Assists in defining the scope and content of their programs,
* Provides a means to improve curriculum management functions,
* Serves as a guide for admissions and job placement functions, and
* Improves communications with employers and advisory committees.

Counseling and Guidance Staff

* Provides a data base for counseling and guidance personnel,
* Identifies student exit points (career options),

- Serves as a guide for admissions and job placement,
- Correlates with new State Board of Education graduation requirements,
- Provides specific content sequencing by quarter and semester for student scheduling, and
- Provides curriculum options for the disadvantaged handicapped student, curriculum modifications for special needs students, and typical admission requirements for regular and special needs students.

Local Curriculum Coordination Committees

- Serves as a guide in working out articulation arrangements,
- Improves definitions of the relationship between secondary clusters and postsecondary specialized programs.

Vocational teachers, supervisors, administrators, counseling and guidance staff, and local curriculum coordination committees will be primary users of this guide; however, the use of the guide is not limited to these groups, but by any and all groups directly related in designing a vocational curriculum.

TABLE OF CONTENTS

PHILOSOPHY, PURPOSE AND OBJECTIVES I-1

  Philosophy, Purpose and Objectives Introduction I-3

  State I-4

  Local I-6

ADMISSIONS AND RECRUITMENT II-1

  Admissions and Recruitment Introduction II-3

  Admissions and Recruitment II-4

OCCUPATIONAL INFORMATION III-1

  Occupational Information Introduction III-3

  Description of the Occupation III-4

  Program Objective III-12

  Definition of the D.O.T. Code III-13

  Description of the D.O.T. Code Exit Points III-14

  The VDARE Process III-16

EMPLOYABILITY SKILLS IV-1

  Employability Skills Introduction IV-3

  Employability Skills IV-4

TASK LISTING V-1

  Task Listing Introduction V-3

  Task Listing by D.O.T. Code and CBE Requirements V-4

CURRICULUM STRUCTURE VI-1

  Curriculum Structure Introduction VI-3

  Curriculum Structure by Quarter VI-4

  Curriculum Structure by Semester...................... VI-5

CURRICULUM CONTENT VII-1

Curriculum Content Design VII-3

Course Outline VII-4

Quarter System Exit Point Diagram VII-16

Semester System Exit Point Diagram VII-17

Competency-Based Education Requirements VII-18

Unit Guides VII-20

FACILITIES VIII-1

Facilities Introduction VIII-3

Student Performance/Work Area VIII-4

Learning Resource Center VIII-10

SPECIAL NEEDS IX-1

Special Needs Introduction IX-3

Working With Special Needs Students IX-4

INSTRUCTIONAL MANAGEMENT INFORMATION X-1

Instructional Management Information Introduction X-3

Competency Checklist and Certificate of Competency Introduction X-4

Instructions X-5

Competency Checklist X-6

Certificate of Competency X-9

Criterion-Referenced Testing Introduction X-17

Criterion-Referenced Testing X-18

Curriculum Guide Section References Introduction X-24

Curriculum Guide Section References X-25

Georgia Performance Standards for Graduation Introduction X-37

Georgia Performance Standards for Graduation X-38
Daily Lesson Plan Introduction X-48
Daily Lesson Plan X-49
GLOSSARY IX-1
Glossary Introduction IX-3
Terms - Part One IX-4
Terms - Part Two IX-10

9

PHILOSOPHY, PURPOSE, AND OBJECTIVES

PHILOSOPHY, PURPOSE AND OBJECTIVES

Contents Listing

Philosophy, Purpose and Objectives Introduction 3
Vocational Education in Georgia 4
Local Philosophy and Goals 6

PHILOSOPHY, PURPOSE AND OBJECTIVES INTRODUCTION

This section provides an overview of the philosophies, purposes and objectives for secondary vocational education in the State of Georgia. These are applied to vocational education at the secondary level, however, it is recognized that more specific philosophies, purposes and objectives will be applicable depending on the character of the local program.

VOCATIONAL EDUCATION IN GEORGIA

PHILOSOPHY

The Georgia Board of Education perceives vocational education as a vital component in the education of the young and adult citizens of this State. Appropriate programs of vocational education and ancillary services should be made readily available to individuals in middle schools, high schools, postsecondary area vocational-technical schools, vocational divisions of junior colleges, vocational centers, the Quick Start program and other adult programs designed to train or retrain citizens for useful and satisfying employment.

Special services and assistance must be provided to those who need it in order to participate or benefit from vocational education. This includes women, minorities, the displaced homemaker and other displaced workers, those with limited English-speaking ability, the disadvantaged and the handicapped.

Since men and women spend the greater part of their lives at some form of work, the State should provide opportunities for all its citizens to develop the knowledge, skills and attitudes necessary for them to secure personally satisfying and socially useful employment.

PURPOSE

The mission of secondary vocational education in Georgia is to prepare students to select, enter and advance in productive careers.

OBJECTIVES

Vocational education in the State of Georgia shall provide:

1. Opportunities for career awareness, exploration and career decisions.
2. Preparation in broad and/or specific occupational skills.
3. Instruction in employability skills.
4. Reinforcement of communication, computational and problem-solving skills through application.
5. Stimulation for continuing career development.

6. Assistance in the delivery of continuing education which reflects the economic needs of the community.

7. Partnerships between vocational education and business/ industry.

STATEMENT OF LOCAL SYSTEM PHILOSOPHY, PURPOSE AND GOALS FOR VOCATIONAL EDUCATION

(Insert your school's statement of philosophy, purpose and goals here.)

ADMISSIONS AND RECRUITMENT

ADMISSIONS AND RECRUITMENT

Contents Listing

Admissions and Recruitment Introduction 3
Admissions and Recruitment 4

17

ADMISSIONS AND RECRUITMENT INTRODUCTION

This section provides an overview of the admissions and recruitment process in Georgia's vocational programs.

ADMISSIONS AND RECRUITMENT

ADMISSIONS

The role of vocational education is to provide individuals with high quality occupational training so that they can become productive members of society's workforce. To insure that this role is fulfilled, schools having vocational programs in which students must apply for admission must establish a uniform procedure which assures all applicants fair, consistent, and equal consideration for participation in vocational education.

Legalities of Admissions Policies

Legislation has mandated that vocational programs are open to all students regardless of their race, national origin, color, creed, sex, or handicapping condition. The following laws provide a legal foundation for those vocational programs which currently have or desire to develop an admissions policy:

- Title VI - Civil Rights Act of 1964 (nondiscrimination on the basis of race, color, and national origin);
- Title IX - Education Amendments of 1972 (nondiscrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973 (nondiscrimination on the basis of handicap);
- Guaranteed Loan Program of 1975; and
- Equal Pay Act of 1963.

Additionally, Georgia has implemented the following procedures to promote nondiscriminatory practices in the schools:

- No student may be denied service, financial aid, or other benefits on the basis of race, color, sex, national origin, or handicap.
- Males, females, minorities, and handicapped persons should be portrayed in both leadership and student roles.
- Males, females, minorities, and handicapped persons should be portrayed in nontraditional occupations.
- Persons may not be excluded because of parental, family, or marital status.

ADMISSIONS AND RECRUITMENT INTRODUCTION

This section provides an overview of the admissions and recruitment process in Georgia's vocational programs.

ADMISSIONS AND RECRUITMENT

ADMISSIONS

The role of vocational education is to provide individuals with high quality occupational training so that they can become productive members of society's workforce. To insure that this role is fulfilled, schools having vocational programs in which students must apply for admission must establish a uniform procedure which assures all applicants fair, consistent, and equal consideration for participation in vocational education.

Legalities of Admissions Policies

Legislation has mandated that vocational programs are open to all students regardless of their race, national origin, color, creed, sex, or handicapping condition. The following laws provide a legal foundation for those vocational programs which currently have or desire to develop an admissions policy:

* Title VI - Civil Rights Act of 1964 (nondiscrimination on the basis of race, color, and national origin);
* Title IX - Education Amendments of 1972 (nondiscrimination on the basis of sex);
* Section 504 of the Rehabilitation Act of 1973 (nondiscrimination on the basis of handicap);
* Guaranteed Loan Program of 1975; and
* Equal Pay Act of 1963.

Additionally, Georgia has implemented the following procedures to promote nondiscriminatory practices in the schools:

* No student may be denied service, financial aid, or other benefits on the basis of race, color, sex, national origin, or handicap.
* Males, females, minorities, and handicapped persons should be portrayed in both leadership and student roles.
* Males, females, minorities, and handicapped persons should be portrayed in nontraditional occupations.
* Persons may not be excluded because of parental, family, or marital status.

- Persons may not be excluded because of pregnancy, childbirth, termination of pregnancy or recovery therefrom.
- There must be no subtle or open bias against any individual or group of individuals.
- There must be no limitation on the number or proportion of persons of either sex admitted to a program.
- The use of sex-biased language must be avoided.
- Schools must be willing and able to serve the handicapped with programs and activities.
- Schools must make special services available for the handicapped.

RECRUITMENT

The goal of recruitment is to search for and identify potential students who want and need vocational education and to familiarize them with the vocational programs available to them.

Research

Before planning and promoting a recruitment program, each vocational program should be analyzed in terms of what it desires to accomplish. The following represent criteria which should prove beneficial in analyzing a vocational program.

- Who constitutes the target population?
- Why do students choose a vocational program?
- Why do students not choose a vocational program?
- Once enrolled, why do students stay in a vocational program?
- What is the image among students, parents, employers, and the general public.
- Are vocational students used in program recruitment?
- What recruitment techniques do current vocational students consider effective?
- How can programs with low enrollment be marketed more effectively?

- What are the program's major strengths?
- What are the program's major weaknesses?

Planning

Once program analysis has been completed, the recruitment effort moves to the planning stage which addresses deficiencies revealed by the research process.

The following represents types of deficiencies:

- Revise program offerings based on research.
- Revise staffing assignments to accommodate program changes.
- Eliminate overlapping program courses.
- Modify existing facilities, equipment, and resource materials to accommodate the handicapped.

Promotion

Once the planning stage has been addressed, the recruitment effort moves to the area of program and student promotion. The following represents types of promotional activities which may be prove beneficial.

* Interacting with General Advisory Committee

Typically, general advisory committee members are influential in business and industry and are community leaders. Information gleaned from this committee is invaluable in the program planning phase of recruitment because these people are familiar with recent trends and changing conditions in industry and in the economy.

The general advisory committee's purpose is to provide advice, counsel, and assistance in the planning, development, and evaluation of vocational programs. The committee is the mechanism necessary for the interaction between the community and the school system.

Members of protected populations should be actively sought to serve on the general advisory committee so that the entire community can have input into the school and its programs.

* Interacting with Craft Committees

Since members of craft committees generally have contact with a large number of potential students, interaction with these individuals is an important part of any recruitment effort. Craft committees are specific subject area advisory committees that advise the vocational instructor. Individuals from protected populations should be encouraged to serve on craft committees so that they can become aware of the equal opportunity afforded to all students in vocational programs.

* Designing Vocational Program Recruitment Publications

Publications such as vocational program catalogs, brochures and audiovisual presentations are excellent methods of promoting vocational programs. When designing publications, it is essential to include a variety of students from different races, colors, ages, sexes and handicapping conditions in illustrations, drawings, slides or film. The students illustrated should be involved in a broad range of occupational programs with an emphasis on nontraditional career opportunities available through vocational programs.

* Open House

Schedule open house activities to allow the general public to meet the vocational staff and students and to learn more about the available vocational programs. The open house should be publicized as far in advance as possible. Media announcements and articles should be distributed so as to reach the broadest segment of the population, including women, minorities and members of limited English speaking communities.

Using student tour guides during open house activities is an effective recruitment method since prospective students often find it easier to develop rapport with another student rather than a vocational staff member.

* Civil, Social and Community Presentations

Opportunities to speak with service groups, church groups and other community organizations which represent a broad range of individuals should be made. In addition to addressing civic groups traditionally served in the past, new and emerging interest groups in the service area should be addressed.

* Recruitment Day

Recruitment day provides students and parents an opportunity to visit vocational programs and obtain first hand information about vocational education.

* Newspaper Coverage

Reports on vocational activities and student success stories sent to local newspapers help bring vocational programs to the attention of the general public. Newspapers are generally receptive to publishing articles and reports written by the vocational staff or students. Whenever possible, features and photographs sent to the press should include students of both sexes and members of minority groups. Students in nontraditional occupational roles should also be highlighted in feature stories prepared for the press.

- Radio and Television Coverage

As part of their public service functions, local radio and television stations have been willing to provide schools and vocational programs with time and coverage of noteworthy events. This coverage takes the form of spot announcements during Vocational Education Week, open house or prior to other special events.

- Billboards

Sometimes outdoor advertising on local billboards can be an effective recruitment device provided the cost is not prohibitive. Whenever billboard advertising is used, vocational programs should be presented in a positive manner.

- Visiting Local Business and Industry

Visits to local business and industry provides students an opportunity to observe their selected occupational area of study. Student enthusiasm and business interest is built from the visits.

- Direct Mail

Sending information to targeted groups has proven to be quite useful. Any direct mailings used for recruitment should include the vocational program's nondiscriminatory policy statement and stress nontraditional career opportunities.

Considerations when Evaluating Recruitment Efforts

The following items should be considered when evaluating the promotional aspect of the recruitment effort.

- Is the recruitment plan or activity organized?
- Are the materials used free of discrimination or bias?
- Are students recruited into vocational programs which are usually considered to be nontraditional for their sex, race, national origin, color, age or handicap?
- Do recruitment teams include persons of different sexes, races, national origins, colors, ages or handicaps?
- Is the promotional material provided to the limited English speaking community in their native language?

- Does promotional material indicate that vocational programs are open to all students regardless of sex, race, national origin, color, age or handicap?
- Does the recruitment program reach all protected populations?

OCCUPATIONAL INFORMATION

OCCUPATIONAL INFORMATION

Contents Listing

Occupational Information Introduction 3
Description of the Occupation 4
Data Processing Program Objective 12
Definition of D.O.T. Code 13
Description of the Occupational Exit Points 14
The VDARE Process 16

OCCUPATIONAL INFORMATION INTRODUCTION

This section provides an overview of the Data Processing field. Also included are specific job information and various characteristics pertinent to the D.O.T. exit points which can potentially be achieved in this Data Processing curriculum guide.

DESCRIPTION OF THE OCCUPATION

DATA ENTRY CLERK (Terminal Operator) - 203.582-054*
COMPUTER OPERATOR - 213.362-010*

Nature of the Work

All data systems require specialized workers to enter data and instructions, operate the computer, and retrieve the results. The data to be processed and the instructions for the computer are called "input;" the results are called "output."

Information is entered into a computer system by data entry personnel in a variety of ways. In some systems, keypunch operators prepare input by punching patterns of holes in computer cards to represent specific letters, numbers, and special characters, using a machine similar to a typewriter. In others, data typists use special machines that convert the information they type to holes in cards of magnetic impulses on tapes or disks. Most newer systems are capable of remote data entry. The user sits at a machine equipped with a typewriter keyboard and an electronic screen that displays the data as they are entered directly into the computer. In some newer systems, data enter the computer at the source of the transaction being recorded, for example, at the loading dock or at a supermarket checkout line.

Once the input is coded-prepared in a form the computer can read-it is ready to be processed. Console operators, who monitor and control the computer, decide what equipment should be set up for each job by examining the special instructions that the programmer has written out. To process the input, they make sure the computer has been loaded with the correct cards, magnetic tapes, or disks, and then start the computer. While it is running, they watch the computer console, paying special attention to signals, such as error lights, that could indicate a malfunction. If the computer stops or an error is signalled, operators must locate the problem and solve it or terminate the program.

In some systems, devices directly connected to the computer provide output in the form desired by the programmer. In others, high-speed printers or card-tape-converters run by auxiliary equipment operators, high-speed printer operators and card-tape-converter operators, perform this function.

Frequently, data on punched cards, magnetic tape, or disks are kept for future use. Tape librarians classify and catalog this material and maintain files of current and previous versions of programs, listings, and test data. In smaller organizations, librarians may do some data entry as well as coordinate the activities of the programmer and the operations department.

---

*Occupational Outlook Handbook. Washington: U.S. Department of Labor, 1982-83.

Working Conditions

Because electronic computers must be operated at carefully controlled temperatures, operators work in well-ventilated rooms; air conditioning counteracts the heat generated by machine operations. When the equipment is operating, however, the computer room can be noisy.

Some console and auxiliary equipment operators work evening or night shifts because many organizations use their computers 24 hours a day. Tape librarians usually work only day shifts.

Employment

About 558,000 persons worked as console, auxiliary equipment, and keypunch operators in 1980.

Although workers in these occupations are employed in almost every industry, most work in manufacturing firms, wholesale and retail trade establishments, and firms that provide data processing services for a fee. Many additional computer and peripheral equipment operators work for insurance companies, banks, and government agencies.

Training, Other Qualifications, and Advancement

In firms that have just installed a new computer system, tabulating and bookkeeping machine operators may be transferred to jobs as keypunch or auxiliary equipment operators, or console operators. Most often, however, employers recruit workers who already have the necessary skills to operate the equipment.

Many high schools, public and private vocational schools, private computer schools, business schools, and community or junior colleges offer training in computer operating skills. The military services also offer valuable training in a number of computer skills. In addition, a growing number of business firms across the country hold weekend seminars on data processing for high school students. Similarly, computer professional associations encourage student participation in professional conferences.

Employers in private industry usually require a high school education, and many prefer to hire console operators who have some community or junior college training, especially in data processing. The Federal Government requires a high school diploma, unless applicants have had specialized training or experience. Many employers test applicants to determine their aptitude for computer work, particularly their ability to reason logically. Keypunch operators and other data entry personnel often are tested for their ability to work quickly and accurately.

Beginners usually are trained on the job. The length of training needed varies-auxiliary equipment operators can learn their jobs in a few weeks, but console operators require several months of training because they must become sufficiently familiar with the computer equipment to be able to identify the causes of equipment failures.

Keypunch and auxiliary equipment operators should be able to work under close supervision as part of a team. They also must feel comfortable working with machines and doing repetitive, organized tasks. Console operators, however, must use independent judgment, especially when working without supervision on second and third shifts.

Advancement opportunities for keypunch and auxiliary equipment operators are limited because data entry techniques are becoming more specialized. However, promotion to a supervisory position is possible after several years on the job. With additional training, often including community or junior college study, a few operators advance to jobs as console operators.

Console operators also may be promoted to supervisory positions, or to jobs that combine supervision and console operation. Through on-the-job experience and additional training, some console operators advance to jobs as programmers.

Job Outlook

Changes in data processing technology will have differing effects on computer operating occupations. Employment of console and peripheral equipment operators, for example, is expected to rise much faster then the average for all occupations through the 1980's. Employment of keypunch operators, on the other hand, should continue to decline.

Recent advances in miniaturizing circuits have enabled manufacturers to reduce both the size and the cost of computer components. As this technology develops, a continued expansion in the use of computers is expected, especially by small businesses. Employment of console and peripheral equipment operators in data processing service firms may grow less rapidly than in the past as more small firms install their own computer systems, but overall demand for these workers should remain fairly strong.

This same technology will further reduce demand for keypunch operators. The primary reason for this decline is the increased use of computer terminals and storage of data on disks and cassettes. As direct data entry techniques continue to become more efficient, the importance of punched cards as a form of input will diminish. Despite the anticipated decline in employment, many openings will occur each year as workers transfer to other occupations, retire, or die.

Related Occupations

Other occupations in which workers organize data and process information on electronic equipment include secretaries and typists, printing typesetters and compositors, transcribing machine operators, and file clerks.

Sources of Additional Information

Further information on data processing careers is available from: American Federation of Information Processing Societies, 1815 North Lynn St., Arlington, VA 22209.

PROGRAMMER, BUSINESS - 020.162-014*

Nature of the Work

Computers can process vast quantities of information rapidly and accurately, but only if they are given step-by-step instructions to follow. Because the machines cannot think for themselves, computer programmers must write detailed instructions called programs that list in a logical order the steps the machine must follow to organize data, solve a problem or do some other task.

Programmers usually work from descriptions prepared by systems analysts who have carefully studied the task that the computer system is going to perform--perhaps organizing data collected in a survey or estimating the stress on portions of a building during a hurricane. These descriptions contain a detailed list of the steps the computer must follow, such as retrieving data stored in another computer, organizing it in a certain way, and performing the necessary calculations. An applications programmer then writes the specific program for the problem, by breaking down each step into a series of coded instructions using one of the languages developed especially for computers.

Programs vary with the type of problem to be solved. For example, the mathematical calculations involved in payroll accounting procedures are different from those required to determine the flight path of a space probe. A business applications programmer developing instructions for billing customers would first take the company records the computer would need and then specify a solution by showing the steps the computer must follow to obtain old balances, add new charges, calculate finance charges, and deduct payments before determining a customer's bill. The programmer then codes the actual instructions the computer will follow in a high-level programming language, such as COBOL.

Next, the programmer tests the operation of the program to be sure the instructions are correct and will produce the desired information. The programmer tries a sample of the data with the program and reviews the results to see if any errors were made. If errors did occur, the program must be changed and rechecked until it produces the correct results. This is called "debugging" the program. Finally, an instruction sheet is prepared for the computer operator who will run the program.

Although simple programs can be written in a few hours, programs that use complex mathematical formulas or many data files may require more than a year of work. In some cases, several programmers may work together in teams under a senior programmer's supervision.

---

*Occupational Outlook Handbook. Washington: U.S. Department of Labor, 1982-82.

Applications programmers are usually business oriented, engineering oriented, or science oriented. A different type of specialist, the systems programmer, maintains the general instructions (called software) that control the operation of the entire computer system. These workers make changes in the sets of instructions that determine the allocation of the computer's resources among the various jobs it has been given. Because of their knowledge of operating systems, systems programmers often help applications programmers determine the source of problems that may occur with their programs.

Working Conditions

Programmers work about 40 hours a week, but their hours are not always from 9 to 5. Once or twice a week programmers may report early or work late to use the computer when it is available; occasionally, they work on weekends. When a new program is being tested, programmers may get calls from computer operators asking for advice at all hours of the day or night.

Employment

In 1980, about 228,000 persons worked as computer programmers. Most were employed by manufacturing firms, data processing service organizations, government agencies, and insurance companies.

Many programmers work in large firms that need and can afford expensive computer systems. Small firms, which generally require computers only for payroll or billing purposes, often pay data processing service organizations to do this work. Small firms may maintain their own low-cost, small business computers. Systems programmers usually work in research organizations, computer manufacturing firms, and large computer centers.

Training, Other Qualifications, and Advancement

There are no universal training requirements for programmers because employers' needs vary. Most programmers are college graduates; other have taken special courses in computer programming to supplement their experience in fields such as accounting or inventory control.

Employers using computers for scientific or engineering applications prefer college graduates who have degrees in computer or information science, mathematics, engineering, or the physical sciences. Graduate degrees are required for some jobs. Very few scientific organizations are interested in applicants who have no college training.

Although some employers who use computers for business applications do not require college degrees, they prefer applicants who have had college courses in data processing, who are experienced in computer operation or payroll accounting but who have no college training are promoted to programming jobs; however, they need additional data processing courses to become fully qualified programmers. Although it may be preferred, prior work experience is not essential for a job as a programmer; in fact, about half of all entrants to the occupation have little or no work experience.

Computer programming is taught at public and private vocational schools, community and junior colleges, and universities. Instruction ranges from introductory home study courses to advanced courses at the graduate level. High schools in many parts of the country also offer courses in computer programming.

An indication of experience and professional competence at the senior programmer level is the Certificate in Computer Programming (CCP). This designation is conferred by the Institute for Certification of Computer Professionals upon candidates who have passed a five-part examination. In addition, individuals may take another section of the exam in order to specialize in business, science, or systems applications.

In hiring programmers, employers look for people who can think logically and are capable of exacting analytical work. The job calls for patience, persistence, and the ability to work with extreme accuracy even under pressure. Ingenuity and imagination are particularly important when programmers must find new ways to solve a problem.

Beginning applications programmers usually spend their first weeks on the jobs attending training classes. After this initial instruction, they work on simple assignments while completing further specialized training programs. Programmers generally must spend at least several months working under close supervision before they can handle all aspects of their job. Because of rapidly changing technology, programmers must continue their training by taking courses offered by their employer and software vendors. For skilled workers, the prospects for advancement are good. In large organizations, they may be promoted to lead programmers and be given supervisory responsibilities. Some applications programmers may become systems programmers. Both applications programmers and systems programmers often become systems analysts or are promoted to managerial positions.

Job Outlook

Employment of programmers is expected to grow faster than the average for all occupations throughout the 1980's as computer usage expands, particularly in firms providing accounting, business management, and computer programming services, and in organizations involved in research and development. In addition to jobs resulting from increased demand for programmers, many openings will arise each year from the need to replace workers who leave the occupation. Because many programmers are relatively young, few openings will result from retirements or deaths. However, many vacancies will be created as experienced workers transfer into jobs as systems analysts or managers.

The demand for applications programmers will increase as many more processes once done by hand are automated, but employment is not expected to grow as rapidly as in the past. Improved software, such as utility programs that can be used by other than data processing personnel will simplify or eliminate some programming tasks. More systems programmers will be needed to develop and maintain the complex operating programs made necessary by higher level computer languages, as well as to link or coordinate the output of different computer systems.

Job prospects should be excellent for college graduates who have had computer-related courses, particularly for those with a major in computer science or a related field. The number of persons with computer skills is not expected to keep pace with rising demand. Graduates of a 2-year program in data processing technologies also should have good prospects, primarily in business applications.

Related Occupations

Other workers in mathematics, business, and science who solve detailed problems include systems analysts, mathematicians, statisticians, engineers, financial analysts, actuaries, mathematical technicians, and operations research analysts.

Sources of Additional Information

Additional information about the occupation of programmer is available from: American Federation of Information Processing Societies, 1815 North Lynn St., Arlington, VA 22209. Information about the Certificate in Computer Programming is available from: The Institute for Certification of Computer Professionals, 35 E. Wacker Dr., Suite 2828, Chicago, IL 60601.

DATA PROCESSING PROGRAM OBJECTIVE

Given appropriate instruction, as suggested by this guide, a student completing the program should demonstrate entry level skills in Data Processing in the areas of knowledge, theoretical structure, equipment usage, diagnostic ability, related supportive skills and occupational survival skills.

As the student progresses through the program, sufficient competencies will be acquired to enable the student to enter the occupational field at the following curriculum exit points.*

Data Entry Clerk (Terminal Operator)	(D.O.T. Code 203.582-054)
Computer Operator	(D.O.T. Code 213.362-010)
Programmer, Business	(D.O.T. Code 020.162-014)

Students who have completed Duty Areas A-I may wish to pursue additional tasks in Duty Area J, Microcomputer Applications. Although these tasks are not keyed to any specific occupational exit point, completion of them will provide the student a broader exposure to software and operating systems applications.

With appropriate instruction, students completing the tasks in Duty Area J should acquire sufficient fundamental competencies to enter the workforce in a computer consulting capacity.

*_Dictionary of Occupational Titles_. Washington: U.S. Department of Labor, 1977.

DEFINITION OF D.O.T. CODE*

As a result of technological, economic and sociological influences, nearly every job in the economy is performed slightly differently from any other job. Every job is also similar to a number of other jobs. In order to look at the millions of jobs in an organized way, job titles are designated a 9-digit occupational code. Each set of three digits in the D.O.T. Code has a specific purpose or meaning that differentiates it from all other codes.

In the D.O.T. Code, the first three digits identify a specific occupational group. In the code 652.382-010, the first digit indicates an occupational category. The second digit refers to a division within the occupational category. The third digit defines a specific occupational group within a division.

The middle three digits of the D.O.T. Code 652.382-010 are the worker function rating of the tasks performed in the occupation. Every job requires a worker to function, to some degree, in relation to data, people and things. A separate digit expresses the worker's relationship to each of these three groups. Worker functions involving more complex responsibility and judgment are assigned lower numbers while functions which are less complicated have high numbers.

The last three digits of the D.O.T. Code 652.382-010 indicate the alphabetical order of titles within 6-digit code groups. They serve to differentiate a particular occupation from all others. A number of occupations may have the same first six digits, but no two D.O.T. Code can have the same nine digits.

---

*Dictionary of Occupational Titles. Washington: U.S. Department of Labor, 1977.

DESCRIPTION OF THE OCCUPATIONAL EXIT POINTS*

203.582-054 TERMINAL OPERATOR

Operates on-line computer typewriter terminal to transmit data to or to receive data from computer at remote location: Types alphabetic or numeric input data or request for data output on keyboard of computer terminal from source documents, using knowledge of coding system. Inserts specified paper into typewriter carriage and presses key to obtain printout or activates machine to display facsimile on viewing screen of information input or stored. Compares data on printout or screen with source documents to detect errors. Backspaces and strikes over original material using terminal keyboard, to correct errors. Presses code key to transmit corrected data via telephone lines to computer. May operate terminal to record data on perforated tape. May place tape in transmitter to transmit data to remote computer. May maintain incoming and outgoing message logs.

020.161-014 PROGRAMMER, BUSINESS

Converts symbolic statements of administrative data or business problems to detailed logical flow charts for coding into computer language: Analyzes all or part of workflow chart or diagram representing business problem by applying knowledge of computer capabilities, subject matter, algebra, and symbolic logic to develop sequence of program steps. Confers with supervisor and representatives of departments concerned with program to resolve questions of program intent, output requirements, input data acquisition, extent of automatic programing and coding use and modification, and inclusion of internal checks and controls. Writer detailed logical flow chart in symbolic form to represent work order of data to be processed by computer system, and to describe input, output, and arithmetic and logical operations involved. Converts detailed logical flow chart to language processable by computer. Devises sample input data to provide test of program adequacy. Prepares block diagrams to specify equipment configuration. Observes or operates computer to test coded program, using actual or sample program steps and sequence. Prepares written instruction to guide operation personnel during production runs. Analyzes, reviews, and rewrites programs to increase operating efficiency or adapt to new requirements. Compiles documentation of program development and subsequent revision. May specialize in writing programs for one make and type of computer.

---

*Dictionary of Occupational Titles. Washington: U.S. Department of Labor, 1977.

213.362-010 COMPUTER OPERATOR

Monitors and controls electronic computer to process business, scientific, engineering, or other data, according to operating instructions: Sets control switches on computer and peripheral equipment, such as external memory, data communicating, synchronizing, input, and output recording or display devices, to integrate and operate equipment according to program, routines, subroutines, and data requirements specified in written operating instructions. Selects and loads input and output units with materials, such as tapes or punchcards and printout forms, for operating runs or oversees operators of peripheral equipment who perform these functions. Moves switches to clear system and start operation of equipment. Observes machines and control panel on computer console for error lights, verification printouts and error messages, and machine stoppage of faulty output. Types alternate commands into computer console, according to predetermined instructions, to correct error or failure and resume operations. Notifies supervisor of errors or equipment stoppage. Clears unit at end of operating run and reviews schedule to determine next assignment. Records operating and down time. Wires control panels of peripheral equipment. May control computer to provide input or output service for another computer under instructions from operator of that unit. May operate small-scal computer (known variously as mini-limited-storage-, or desk-size computer) and related on-line or off-line equipment and be designated SMALL-SCALE-COMPUTER OPERATOR.

THE VDARE PROCESS

A resource for assessing an individual's capabilities and initiating job placement action is the VOCATIONAL DIAGNOSIS and ASSESSMENT of RESIDUAL EMPLOYABILITY (VDARE) process. Its purpose is described in Vocational Assessment Planning and Jobs.

> "...is designed for job analysis and the assessment of vocational potential. Utilizing the Dictionary of Occupational Titles (D.O.T.), the client's personal history and current level of functioning, information (medical, psychological, social, educational and vocational) is synthesized to predict vocational functional potential. The Process Worksheet is used to record, synthesize and analyze the vocationally relevant information about the client's potential to work."[1]

The objective of this process is aiding the vocational professional; i.e., instructor, counselor, or administrator in placing a student's assessed qualifications before prospective employers. The assessment of personal qualifications is unique to each individual and is accomplished through trait factor analysis.

The VDARE process isolates the individual traits and matches them to occupations which use or accommodate the particular grouping of traits which result from the trait factor analysis. The matching is accomplished via a computer search of VDARE's data bank which contains the classification of jobs according to worker trait factors. Each of 12,099 jobs are factored in eleven categories.

"1) DOT Code
2) Data/People/Things (DPT) Number
3) Guide to Occupational Exploration (GOE) Code
4) Job Title
5) Physical Demands
6) Working Conditions
7) General Educational Development (Reasoning, Math, Language
8) Specific Vocational Preparation
9) Aptitudes
10) Interests
11) Temperaments"[2]

---

1) Sink, J.M. and Field, T.F. Vocational Assessment Planning and Jobs. Athens, GA: VDARE Service Bureau, 1981.

2) Field, T.F. and Field, J.R. The Classification of Jobs According to Worker Trait Factors. Roswell, GA: North Fulton Printing, 1982.

If you are interested in pursuing a trait factor analysis, each case study begins with the "VDARE Process Worksheet". This form presents the client's biographical data, educational/training and work history. A medical report, vocational/psychological testing, work evaluation and behavioral observation add further definitions of the individual's traits. The resulting measures of these traits are recorded onto the "Vocational Relevant Information" section of the VDARE worksheet. This data is matched through a computer search to occupations in which the client may be expected to function successfully.

The worker trait factor for your particular program are presented on the following pages. Although these are composite descriptions of occupations as they may typically occur, they may not always coincide with a specific job as it is actually performed in a particular work environment.

DATA ENTRY CLERK (TERMINAL OPERATOR)

203.582-054*

Data, People, Things

Persons desiring to become data entry clerks should have the ability to transcribe, enter, or post data. They must have the ability to take instructions and help others. They must be able to start, stop, control, and adjust the progress of machines or equipment. Operating machines involves setting up and adjusting the machine or material(s) as the work progresses. Controlling machines involves observing dials, etc.

Physical Demands

Data entry clerks have a sedentary work load. They must have the ability to lift 10 pounds maximum and occasionally lift and/or carry such articles as dockets and ledgers. The ability to reach, handle, finger, feel, talk, hear, and see is beneficial.

Working Conditions

Data entry clerks spend the majority of their working time inside.

General Education Development

Reasoning: Data entry clerks must apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. They must interpret a variety of instruction furnished in written, oral, diagrammatic, or schedule form.

Mathematics: Data entry clerks must make arithmetic calculations involving fractions, decimals, and percentages. They must also use arithmetic to add, subtract, multiply, and divide whole numbers.

Language: Data entry clerks must interpret technical manuals as well as drawings and specifications. They must file and post such materials as forms, checks, receipts, and bills. They must be able to copy data from one record to another, fill in report forms, and type work from rough draft or corrected copy.

Specific Vocational Preparation

Training time should be over 3 months up to and including 6 months.

Aptitudes

Intelligence: average degree
Verbal: average degree
Numerical: low degree
Spatial: low degree
Form Perception: average degree
Clerical Perception: high degree

Motor Coordination: average degree
Finger Dexterity: average degree
Manual Dexterity: low degree
Eye-Hand-Foot Coordination: negligible degree
Color Discrimination: negligible degree

Interests

Data entry clerks prefer activities that deal with things and objects and that are concerned with the communication of data. They prefer activities that are routine, concrete and organized in nature. They also prefer activities that are carried on in relation to processes, machines, and techniques.

Temperaments

Data entry clerks should be able to perform repetitive work, or to perform continuously the same work, according to set procedures, sequence, or pace. They must be able to adapt to situations requiring the precise attainment of set limits, tolerances, or standards.

*Field, Tim. The Classification of Jobs According to Worker Trait Factors, 1982.

COMPUTER OPERATOR
213.362-010*

Data, People, Things

Persons desiring to become computer operators should have the ability to gather, collate, or classify information about data, people, or things. They must have the ability to report and/or carry out a prescribed action on a frequent basis. They must have the ability to exchange information such as giving assignments and/or directions to helpers or assistants. They must be able to start, stop, control, and adjust the progress of machines or equipment. Operating machines involves setting up and adjusting the machine or material(s) as the work progresses. Controlling machines involves observing dials, etc.

Physical Demands

Computer operators have a light work load. They must have the ability to lift 20 pounds maximum with frequent lifting and/or carry objects weighing up to 10 pounds. The ability to reach, handle, finger, feel, talk, hear, and see is beneficial.

Working Conditions

Computer operators spend their working hours inside.

General Education Development

Reasoning: Computer operators must apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. They must interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.

Mathematics: Computer operators must make arithmetic calculations involving fractions, decimals, and percentages. They must also use arithmetic to add, subtract, multiply, and divide whole numbers.

Language: Computer operators must interpret technical manuals as well as drawings and specifications. They must file and post such materials as forms, checks, receipts, and bills. They must be able to copy data from one record to another, fill in report forms, and type work from rough draft or corrected copy.

Specific Vocational Preparation

Training time should be 1 year up to and including 2 years.

Aptitudes

Intelligence: high degree
Verbal: average degree
Numerical: average degree
Spatial: average degree
Form Perception: average degree
Clerical Perception: high degree

Motor Coordination: high degree
Finger Dexterity: average degree
Manual Dexterity: low degree
Eye-Hand-Foot Coordination: low degree
Color Discrimination: negligible degree

Interests

Computer operators prefer activities that are routine, concrete, and organized in nature. They prefer activities that are carried on in relation to processes, machines, and techniques.

Temperaments

Computer operators should be able to perform a variety of duties, often changing from one task to another of a different nature without loss of efficiency or composure. They must be able to perform under stress when confronted with emergency, critical, unusual, or dangerous situations; or situations in which working speed and sustained attention are make-or-break aspects of the job. They should be able to adapt to situations requiring the precise attainment of set limits, tolerances, or standards.

---

*Field, Tim. *The Classification of Jobs According to Worker Trait Factors*, 1982.

PROGRAMMER, BUSINESS
020.162-014*

Data, People, Things

Persons desiring to become programmers should have the ability to determine time, place, and sequence of operations or action to be taken on the basis of analysis of data; executing determination and/or reporting on events. They must have the ability to report and/or carry out a prescribed action on a frequent basis. They must have the ability to exchange information such as giving assignments and/or directions to helpers or assistants. They must be able to start, stop, control, and adjust the progress of machines or equipment. Operating machines involves setting up and adjusting the machine or material(s) as the work progresses. Controlling machines involves observing dials, etc.

Physical Demands

Programmers have a sedentary work load. They must have the ability to lift 10 pounds maximum and occasionally lift and/or carry such articles as dockets and ledgers. The ability to reach, handle, finger, talk, hear, and see is beneficial.

Working Conditions

Programmers spend their working hours inside.

General Education Development

Reasoning: Programmers must apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. They must interpret an extensive variety of technical instructions, in books, manuals, and mathematical or diagrammatic form. They must deal with several abstract and concrete variables.

Mathematics: Programmers must apply knowledge of advanced mathematical and statistical techniques such as differential and integral calculus, factor analysis, and probability determinations, or work with a wide variety of theoretical mathematical concepts and make original applications of mathematical procedures, as in empirical and differential equations.

Language: Programmers must interpret technical manuals as well as drawings and specifications. They must file and post such materials as forms, checks, receipts, and bills. They must be able to copy data from one record to another, fill in report forms, and type work from rough draft or corrected copy.

Specific Vocational Preparation

Training time should be 1 year up to and including 2 years.

Aptitudes

Intelligence: high degree
Verbal: high degree
Numerical: high degree
Spatial: high degree
Form Perception: average degree
Clerical Perception: low degree

Motor Coordination: low degree
Finger Dexterity: low degree
Manual Dexterity: low degree
Eye-Hand-Foot Coordination: negligible degree
Color Discrimination: low degree

Interests

Programmers prefer activities that are scientific and technical in nature. They also prefer activities that are carried on in relation to processes, machines, and techniques.

Temperaments

Programmers should be able to accept responsibility for the direction, control, or planning of an activity. They should be able to make generalizations, evaluations, or decisions based on measurable or verifiable criteria. They should be able to adapt to situations requiring the precise attainment of set limits, tolerances, or standards.

*Field, Tim. The Classification of Jobs According to Worker Trait Factors, 1982.

EMPLOYABILITY
SKILLS

EMPLOYABILITY SKILLS

Contents Listing

Employability Skills Introduction 3
Employability Skills 4

EMPLOYABILITY SKILLS INTRODUCTION

This section provides an overview of employability skills that are desirable in any occupation.

EMPLOYABILITY SKILLS

INTRODUCTION

Possessing employability skills directly influences a person's ability to get and keep a job. The vocational program environment creates an ideal situation for introducing and reinforcing those employability skills necessary for acquiring and keeping a job.

In this section, a discussion of key employability skills is provided and suggestions for incorporating them into your daily program of instruction are also included. A thorough discussion of all aspects of employability in such limited space would hardly be feasible. However, the information included does provide a sound base from which you may draw many beneficial ideas.

CONDUCTING A JOB SEARCH

Conduct a Personal Assessment

Before beginning a job search, students need to know what abilities are needed for a job and what interests and abilities they possess. Students can determine their specific job interests by assessing their abilities, interests, work preferences, social needs and values.

Abilities consist of those things which students can do well. Examples include:

* Mathematical ability
* Mechanical ability
* Clerical ability
* Technical ability

Interests consist of those things which students enjoy through hobbies or activities. Examples include:

* Computers
* Cooking
* Cars

* Construction

* Electronics

Work preferences are attitudes and feelings which students have about activities on the job and working conditions of the job. Examples include:

* Working conditions

* Routine work

* Taking responsibility

* Working with others

Social needs are the needs of students in relation to the work environment and the work factors which affect leisure time. Examples include:

* Helping people

* Working long hours

* Having nights free

* Maintaining good appearance

Values are those things which students feel are important. Examples include:

* Independence

* Helping others

* Job security

* Salary

Suggest to students that through several informational sources they can find out what their interests and abilities are. These sources include:

* Student's self-inventory

* Opinions of friends, relatives and instructors

* School grades and records

* Test results

Obtain Information about Jobs

Before beginning a job search, students will need to know the job requirements and the job description for each job considered.

Job requirements are those items which are needed to get a job and include:

- Work experience
- Special abilities
- Licenses or certification
- Education
- Training

A job description provides information about the job itself and includes:

- Salary
- Working conditions
- Duties
- Opportunity for advancement

Students may obtain information about a job through resources such as:

- People in the occupation
- Parents and friends
- Guidance counselors
- Occupational specialists
- Members and officers of trade unions
- Dictionary of Occupational Titles
- Occupational Outlook Handbook
- Newspaper classified ads
- Bulletin boards
- Personnel offices

After locating potential jobs which reflect personal interests and abilities, students should begin preparing for job interviews.

APPLYING FOR A JOB

Obtain Necessary Documents

Before applying for a job, encourage students to secure certain documents. Having access to the following documents makes getting a job much easier:

* Birth certificate
* Social security card
* Work permit (if student is under age 18)

Complete Job Application

Familiarize students with what a job application is and how it should be filled out. Stress to students that the job application is a potential employer's initial contact with prospective employees and that the manner in which it is completed directly reflects on the applicant. A completed job application should meet the following criteria:

* Comprehensive
* Accurate
* Neat
* Complete

Develop a Resume'

Many employers require a resume'; therefore, students should be familiarized with how to develop one. A resume' provides potential employers with a brief history of the applicant. A resume' should include the following information:

* Address
* Personal history
* Education
* Work experience
* References

Write a Letter of Application

Often a letter of application is attached to a resume'. The letter should provide a potential employer with the following information:

- Introduces the applicant
- Specifies the desired job
- Specifies qualifications for the job
- Provides rationale as to why applicant should be considered for the job

INTERVIEWING FOR A JOB

Prior to the Interview

Through the job preparation process, students should be ready to meet the challenge of the job interview. Prior to the interview, students should be cognizant of the following:

- Have all personal information with you.
- Have a neat, clean appearance.
- Know something about the company and the job.
- Have a list of questions to ask the interviewer.
- Do not carry anyone with you to the interview.
- Be 5 to 15 minutes early.
- Present yourself to the receptionist.
- Do not chew gum or smoke while waiting.
- Do not talk loudly to others while waiting.
- Take your turn and do not try to get ahead of anyone else.

The Interview

An interview is a meeting between an employer and a person looking for a job. The purpose of the interview is to discuss the job and the applicant's qualifications for the job. The interview consists of questions and answers from both people. The interviewer will ask questions to obtain information about the applicant and to find out about the person's general work attitude.

The person interviewed should express interest in the job and be willing to learn new things. Questions about the job or company should also be asked of the interviewer. A few important facts to find out during the interview include the type of benefits the company offers, insurance coverage, if sick leave benefits and personal leave benefits are available, the range of salary offered, and if there is a union.

Examples of questions an employment interviewer might ask an applicant include:

* Are you willing to take a physical examination?
* Tell me about your work experience.
* Do you have any hobbies or special interests?
* Are you willing to work anywhere you are assigned?
* Why do you want to be a ___(job)___?
* How are you at following orders?
* Would you be willing to start as a temporary or part-time worker?
* Do you know anyone who works here?
* How did you hear about this job and/or company?
* How long have you lived in this area?
* Do you think you could handle this job?

Students should find the following basic rules helpful during an interview:

* Avoid nervous gestures such as moving around in your chair, tapping your fingers or other objects on the table, or wringing your hands.
* Keep your voice even, not too loud or too soft.
* Greet your interviewer by name, if possible, and use a firm grip when shaking hands. (Note: males should wait for the interviewer to offer his hand; the interviewer will wait for a female to offer to shake hands.)
* Wait to be seated until invited to do so.
* Do not chew gum or smoke, even if invited to do so.
* Know which job you are applying for.

- Let the interviewer do most of the talking, but give enough information about yourself.
- Be prepared to answer questions about yourself and your qualifications.
- Be alert and sit up straight.
- Be courteous.
- Get across your good points.
- If you have been fired from a job, be honest about it when asked.
- Show self-confidence and determination.
- At the end of the interview, thank the interviewer for his/her time.

After the Interview

Students should keep a record of each interview to help remember facts about the job and as an aid for future interviews.

As a courtesy, students might write a brief follow-up letter after the interview to express continued interest and to express appreciation for the interviewer's time.

Students should not be discouraged if a job is not secured. Encourage them to be persistent and to continue interviewing.

There are a variety of reasons why students do not get a job. Several reasons include:

- Appearance is not suitable for the job.
- Do not have enough training or experience for the job.
- Attitude or behavior in the interview was not business-like.
- Late for interview or do not show up at all.
- Have an unfriendly or hostile manner.
- Do not make a passing score on the vocational test.
- Ask too many questions about employee benefits rather than the job itself.
- Take another person with them to the interview.

Keeping a Job

After obtaining a job, the next concern will be to keep it. Many times this is the most difficult part of the job process. For this reason, it is imperative to discuss with students job responsibilities and attitudes that are necessary for keeping a job.

Below are examples of desirable job responsibilities and attitudes which will aid students in getting along with superiors and co-workers on the job. Continual practice of such desirable characteristics should help ensure that a student will keep a job.

- Being on time
- Being at work every day
- Maintaining neat appearance
- Being responsible
- Being friendly, but not overly friendly or too familiar with supervisors
- Being courteous
- Being honest
- Showing respect for others
- Refraining from gossiping
- Following directions
- Keeping busy
- Refraining from making fun of others
- Staying healthy
- Following rules of the company
- Taking an interest in work
- Leaving troubles at home
- Taking pride in work
- Refraining from arguing with the boss
- Following safety procedures
- Accepting criticism

Students should be made aware that people are sometimes fired from their jobs. Below are a few examples of the poor work habits which lead to being fired:

* Being tardy
* Leaving early
* Taking too many breaks
* Taking too long on breaks
* Missing days from work
* Stealing from the company
* Being dishonest
* Breaking rules of the company
* Poor rapport with co-workers
* Refraining from maintaining work load
* Lack of interest in learning new skills
* Job not done well
* Unwilling to improve work habits

If students become reliable workers and show all the necessary qualifications, they may be chosen for career advancements. The following tips will prepare students for job advancement:

* Being efficient
* Following safety rules
* Showing responsibility
* Working overtime, if necessary
* Volunteering for extra duties
* Taking extra courses, workshops or seminars

INCORPORATING EMPLOYABILITY SKILLS INTO VOCATIONAL PROGRAMS

The process of incorporating employability skills into vocational programs can be viewed in relation to the philosophies of Prossor and Dewey.

Dr. C. A. Prossor, one of vocational education's founding fathers, contended that instructional content be focused on industry needs and that instructional methods be based on learning through direct experience. Prossor further expressed that by introducing students to a stimuli directly related to their desired occupational field and that by having them repeatedly react to that exact stimulus, learning would be fostered.

Dr. John Dewey, asserted that students learn better through a wholistic instructional approach which focuses on both occupational and personal survival skills.

In determining how to incorporate employability skills into your program, the most beneficial approach for nurturing learning is a blending of both the Prossor and Dewey philosophies with those of your own. The main thing to remember in determining your style is to make sure it encompasses goals beneficial both to students and to society. By using employability skills as stimuli and by having students practice those skills, they will be more productive as individuals and more productive as functioning members of society.

When incorporating employability skills into your program, the following 12 topics might be considered.*

1. Working in an Organization: To familiarize students with the reasons for the formation of organizations and the common characteristics of organizations.

2. Understanding Self and Others: To have students develop insights into causes of human behavior and learn to interpret their own behavior and the behavior of others.

3. Motivation for Work: To have students develop an understanding of motivations into the work they perform.

4. Interpersonal Relations: To have students develop concepts and skills in interpersonal relations and apply them to work situations.

*Abstracted from the article, "Survival Skills: Mastering the Human Aspects of Work," by Robert E. Nelson, American Vocational Journal, November 1977.

5. On-the-Job Communication: To have students understand the importance of effective communication and learn ways of communicating effectively on the job.

6. Using Creativity on the Job: To make students aware of their creative potential and to practice using their creative ability in hypothetical on-the-job situations.

7. Authority and Responsibility: To have students develop an understanding of the concepts of authority, power, influence, and responsibility as they apply to work situations.

8. Problem Solving: To have students develop skills in applying problem solving to their work.

9. Coping with Organizational Change: To make students aware of the process of organizational change and to suggest the techniques for coping with organizational change.

10. Coping with Organizational Conflict: To make students aware of the sources and types of conflict encountered on the job and recognize ways of coping with conflicts in an organization.

11. Leadership: To have students recognize the need for leadership in work groups and increase their understanding of the leadership role in work situations.

12. Adapting and Planning for the Future: To have students develop perspectives of work in the future and the ability to plan for anticipated changes in their work roles.

TASK LISTING

TASK LISTING

Contents Listing

Task Listing Introduction 3
Task Listing by D.O.T. Code 4

62

TASK LISTING INTRODUCTION

This section provides the task listing for the Data Processing program. The task listing is organized into a matrix which illustrates the relationship of each curriculum guide task to the D.O.T. Code exit points and to the Georgia competency based education (CBE) requirements. If a task is applicable to a D.O.T. Code exit point or CBE requirements, and X appears where the columns intersect.

TASK LISTING BY DOT CODE

DATA PROCESSING

		POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
	DOT DESCRIPTIONS	Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	DOT NO.	203.582-054	213.362-010	020.162-014							
TASK NO.	TASK NAME										
	Duty A: Employability Skills										
	Fundamentals										
PE-01	Completing the job application process	X	X	X			X		X		
PE-02	Demonstrating desirable work traits	X	X	X			X		X		
PE-03	Demonstrating an understanding of the										
	importance of the application-related										
	security requirements	X	X	X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS: DOT DESCRIPTIONS / DOT NO.	Terminal Operator (Data Entry) 203.582-054	Computer Operator 213.362-010	Programmer, Business 020.162-014			CBE REQUIREMENTS MET	LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	Duty B: Data Processing History and Overview												
CC-01	Demonstrating a knowledge of the information processing cycle		X	X	X				X		X		
CC-02	Analyzing the impact of computers on our society		X	X	X				X		X		
CC-03	Identifying computer languages by name and major purpose		X	X	X				X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

		POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
		DOT DESCRIPTIONS									
		Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
TASK NO.	TASK NAME	DOT NO. 203.582-054	213.362-010	020.162-014							
CC-04	Describing the classifying factors of types of computers	X	X	X			X		X		
CC-05	Using computers in industry	X	X	X			X		X		
CC-06	Examining careers in information systems	X	X	X			X		X		
	Duty C: Keyboarding										
CC-07	Operating keyboard by touch control	X	X	X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
		Terminal Operator (Data Entry) 203.582-054	Computer Operator 213.362-010	Programmer, Business 020.162-014			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	Duty D: Data Processing Fundamental Concepts										
CC-08	Describing the role of computer system hardware components	X	X	X			X		X		
CC-09	Demonstrating a knowledge of copyright laws	X	X	X			X		X		
CC-10	Describing the organization of auxiliary storage	X	X	X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
	DOT DESCRIPTIONS	Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	DOT NO.	203.582-054	213.362-010	020.162-014							
CC-11	Recognizing the organization and use of internal data structures	X	X	X			X		X		
CC-12	Recognizing relationships among types of computer software --- operating systems, programming languages and applications	X	X	X			X		X		
CC-13	Installing, maintaining and backing up media	X	X	X			X		X		
CC-14	Using numbering systems	X	X	X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
	DOT DESCRIPTIONS	Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	DOT NO.	203.582-054	213.362-010	020.162-014							
CC-15	Planning, coding and testing a simple program using structured techniques	X	X	X			X		X		
CC-16	Describing the integral relationships among word processing and data processing in management information systems	X	X	X			X		X		
CC-17	Demonstrating an understanding of data communications (teleprocessing) concepts	X	X	X			X		X		
CC-18	Describing and illustrating the uses of a computer spreadsheet	X	X	X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

		POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
		DOT DESCRIPTIONS									
		Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
TASK NO.	TASK NAME	DOT NO. 203.582-054	213.362-010	020.162-014							
CC-19	Using a data base program	X	X	X			X		X		
CC-20	Using graphics software for charts, graphs and other illustrations	X	X	X			X		X		
CC-21	Using electronic mail	X	X	X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS: Terminal Operator (Data Entry) 203.582-054	Computer Operator 213.362-010	Programmer, Business 020.162-014			CBE REQUIREMENTS MET: LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	Duty E: Word Processing Fundamental Concepts										
CC-22	Previewing word processing techniques	X	X	X			X		X		
CC-23	Designing a document using word processing software	X	X	X			X		X		
CC-24	Entering and editing text using word processing software	X	X	X			X		X		
CC-25	Finishing a document using word processing software	X	X	X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS DOT NO. / DOT DESCRIPTIONS 203.582-054 Terminal Operator (Data Entry)	213.362-010 Computer Operator	020.162-014 Programmer, Business			CBE REQUIREMENTS MET LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
CC-26	Printing a document using word processing software	X	X	X			X		X		
	Duty F: Data Control Functions										
DE-01	Setting up work station	X	X				X		X		
DE-02	Previewing data control functions	X	X				X		X		
DE-03	Scheduling and monitoring jobs	X	X	X			X		X		
DE-04	Checking out and returning tapes or disks from the tape/disk library		X				X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
	DOT DESCRIPTIONS	Terminal Operator (Data Entry)	Computer Operator	Programmer, Business							
	DOT NO.	203.582-054	213.362-010	020.162-014			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
DE-05	Preparing backup files		X				X		X		
DE-06	Monitoring disk usage		X				X		X		
DE-07	Copying data		X				X		X		
DE-08	Previewing entering/verifying process	X					X		X		
DE-09	Searching tape, disk or diskette for information	X	X				X		X		
DE-10	Recognizing system or operational errors	X					X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
	DOT DESCRIPTIONS / DOT NO.	Terminal Operator (Data Entry) 203.582-054	Computer Operator 213.362-010	Programmer, Business 020.162-014			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
DE-11	Assessing/handling errors in source input	X					X		X		
DE-12	Modifying records and correcting data entry errors	X					X		X		
DE-13	Entering data from source documents (with or without program control)	X					X		X		
DE-14	Transmitting data	X					X		X		
DE-15	Preparing keyed source document for return to supervisor	X					X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS						CBE REQUIREMENTS MET				
		DOT DESCRIPTIONS	Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
		DOT NO.	203.582-054	213.362-010	020.162-014							
DE-16	Adding new records		X					X		X		
DE-17	Recovering data after incorrectly removing tape or diskette		X					X		X		
DE-18	Recovering data after power failure		X	X				X		X		
DE-19	Performing emergency shutdown procedures			X				X		X		
DE-20	Terminating operation		X	X				X		X		
DE-21	Deleting job files			X				X		X		
DE-22	Receiving data from remote units			X				X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS DOT DESCRIPTIONS	Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			CBE REQUIREMENTS MET	LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
		DOT NO.	203.582-054	213.362-010	020.162-014								
DE-23	Entering data from optical character recognition device (OCR) (with or without program control)		X	X					X		X		
	Duty G: Problem Analysis												
PR-01	Identifying specific user needs				X				X		X		
PR-02	Designing output				X				X		X		
PR-03	Determining input required for program				X				X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
	DOT DESCRIPTIONS	Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	DOT NO.	203.582-054	213.362-010	020.162-014							
PR-04	Developing algorithm using pseudocode/ flowchart			X			X		X		
PR-05	Detailing all formulas and calculations			X			X		X		
	Duty H: Coding Programs										
PR-06	Coding application programs using structured techniques			X			X		X		
PR-07	Coding application programs using file handling techniques			X			X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

		POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET					
		DOT DESCRIPTIONS: Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER	
TASK NO.	TASK NAME	DOT NO.: 203.582-054	213.362-010	020.162-014								
PR-08	Developing test data to validate program			X			X		X			
PR-09	Desk checking source program for errors			X			X		X			
PR-10	Analyzing computer output for accuracy following test run			X			X		X			
PR-11	Debugging programs with or without computer aid			X			X		X			

TASK LISTING BY DOT CODE

DATA PROCESSING

		POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
		DOT DESCRIPTIONS									
		Terminal Operator (Data Entry)	Computer Operator	Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
TASK NO.	**TASK NAME**	DOT NO. 203.582-054	213.362-010	020.162-014							
	Duty I: Program Documentation										
PR-12	Developing a documentation narrative			X			X		X		
PR-13	Preparing operation documentation			X			X		X		
PR-14	Preparing user documentation			X			X		X		
PR-15	Updating documentation for program			X			X		X		

Students who have completed Duty Areas A-I may wish to pursue additional tasks in Duty Area J, Microcomputer Applications. Although these tasks are not keyed to any specific occupational exit point, completion of them will provide the student a broader exposure to software and operating systems applications.

With appropriate instruction, students completing the tasks in Duty Area J should acquire sufficient fundamental competencies to enter the workforce in a computer consulting capacity.

Duty Area J: Microcomputer Applications

MA-01	Describing alternative operating systems
MA-02	Demonstrating knowledge of data communications/ teleprocessing systems
MA-03	Describing networking alternatives and arrangements
MA-04	Installing applications software package (in-house)
MA-05	Installing applications software package (commercial)
MA-06	Changing configuration of already-installed package
MA-07	Modifying source code or programs to alter their performance
MA-08	Backing up and restoring software and data

TASK LISTING BY DOT CODE

DATA PROCESSING

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
		DOT NO. 203.582-054 DOT DESCRIPTIONS Terminal Operator (Data Entry)	DOT NO. 213.362-010 DOT DESCRIPTIONS Computer Operator	DOT NO. 020.162-014 DOT DESCRIPTIONS Programmer, Business			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
	Duty J: Microcomputer Applications										
MA-01	Describing alternative operating systems						X		X		
MA-02	Demonstrating knowledge of data communications/teleprocessing systems						X		X		
MA-03	Describing networking alternatives and arrangements						X		X		
MA-04	Installing applications software package (in-house)						X		X		

TASK LISTING BY DOT CODE

DATA PROCESSING

		POSSIBLE EXIT POINTS					CBE REQUIREMENTS MET				
		DOT DESCRIPTIONS / DOT NO.									
TASK NO.	TASK NAME	Terminal Operator (Data Entry) 203.582-054	Computer Operator 213.362-010	Programmer, Business 020.162-014			LEARNER	INDIVIDUAL	PRODUCER	CITIZEN	CONSUMER
MA-05	Installing applications software package (commercial)						X		X		
MA-06	Changing configuration of already-installed package						X		X		
MA-07	Modifying source code or programs to alter their performance						X		X		
MA-08	Backing up and restoring software and data						X		X		

CURRICULUM STRUCTURE

CURRICULUM STRUCTURE

Contents Listing

Curriculum Structure Introduction 3
Curriculum Structure by Quarter 4
Curriculum Structure by Semester 5

CURRICULUM STRUCTURE INTRODUCTION

On the following pages, a suggested curriculum structure for the Data Processing program is presented. A curriculum structure is a method for outlining the information to be presented in the program. The proposed curriculum structure is sectioned by duty areas within the Data Processing program.

CURRICULUM STRUCTURE BY QUARTER

QUARTER 1

Duty A:	Employability Skills	14
Duty B:	Data Processing History and Overview	36
Duty C:	Keyboarding	15
Duty D:	Data Processing Fundamental Concepts	56
		121

QUARTER 2

Duty D:	Data Processing Fundamental Concepts (continued)	21
Duty E:	Word Processing Fundamental Concepts	34
Duty F:	Data Control Functions	70
		125

QUARTER 3

Duty G:	Problem Analysis	38
Duty H:	Coding Programs	80
		118

QUARTER 4

Duty H:	Coding Programs (continued)	120
		120

QUARTER 5

Duty H:	Coding Programs (continued)	90
Duty I:	Program Documentation	34
		124

QUARTER 6

Duty J:	Microcomputer Applications	130
		130

Total Program Hours By Quarter 738

CURRICULUM STRUCTURE BY SEMESTER

SEMESTER 1

Duty A:	Employability Skills	14
Duty B:	Data Processing History and Overview	36
Duty C:	Keyboarding	15
Duty D:	Data Processing Fundamental Concepts	77
Duty E:	Word Processing Fundamental Concepts	34
		176

SEMESTER 2

Duty F:	Data Control Functions	70
Duty G:	Problem Analysis	38
Duty H:	Coding Programs	80
		188

SEMESTER 3

Duty H:	Coding Programs (continued)	180
		180

SEMESTER 4

Duty H:	Coding Programs (continued)	30
Duty I:	Program Documentation	34
Duty J:	Microcomputer Applications	130
		194

Total Program Hours By Semester 738

CURRICULUM CONTENT

CURRICULUM CONTENT

Contents Listing

Curriculum Content Design 3
Course Outline 4
Quarter System Exit Point Diagram 16
Semester System Exit Point Diagram 17
Competency-Based Education Requirements 18
Unit Guides 20

CURRICULUM CONTENT DESIGN

The Data Processing curriculum guide is based upon a two hour block, two year course design. Fundamental skills and competencies (core curriculum) are emphasized during the first year, while a concentration of the more specialized skills and competencies occurs during the second year. The core curriculum serves as a prerequisite to additional study in the Data Processing program.

The core curriculum focuses on intensive study of the fundamental skills competencies in the areas of employability skills, history and overview, keyboarding, data processing fundamental concepts, word processing fundamental concepts, and data control functions. Attention is also focused on reinforcing and integrating applicable reading, math, problem solving, and communication skills into the curriculum.

Students completing the core curriculum may elect to enter the workforce at the following occupational exit points:

Terminal Operator (Data Entry)	(D.O.T. Code 203.582-054)
Computer Operator	(D.O.T. Code 213.362-010)

Students desiring more specialized skills and competencies may elect to continue in the Data Processing program during a second year. In contrast to the core curriculum, the second year is designed to provide students an opportunity to investigate and study the advanced area of Business Programmer. Attention is also directed toward reinforcing and integrating applicable reading, math, problem solving, and communication skills into the curriculum.

Students completing the second year may elect to enter the workforce at the following occupational exit point:

Programmer, Business	(D.O.T. Code 020.162-014)

Students who have completed Duty Areas A-I may wish to pursue additional tasks in Duty Area J, Microcomputer Applications. Although these tasks are not keyed to any specific occupational exit point, completion of them will provide the student a broader exposure to software and operating systems applications.

With appropriate instruction, students completing the tasks in Duty Area J should acquire sufficient fundamental competencies to enter the workforce in a computer consulting capacity.

COURSE OUTLINE

On the following pages, a suggested course outline is presented for the Data Processing program. A course outline is a suggested method for structuring tasks into a logical teaching plan.

The core curriculum is designed to cover either three quarters or two semesters during year one of the Data Processing program. The more specialized tasks are designed to cover three quarters or two semesters during the program's second year.

Instructors having programs which are not two years in length or two hour block in design will find it necessary to modify the suggested course outline to meet their specific program needs. This may be accomplished by reducing the amount of class and laboratory time suggested or by eliminating tasks which are not appropriate for your particular program.

QUARTER 1

Duty A: Employability Skills

PE-01	Completing the job application process	10
PE-02	Demonstrating desirable work traits	2
PE-03	Demonstrating an understanding of the importance of the application-related security requirements	2
		14

Duty B: Data Processing History and Overview

CC-01	Demonstrating a knowledge of the information processing cycle	5
CC-02	Analyzing the impact of computers on our society	5
CC-03	Identifying computer languages by name and major purpose	5
CC-04	Describing the classifying factors of types of computers	5
CC-05	Using computers in industry	10
CC-06	Examining careers in information systems	6
		36

Duty C: Keyboarding

CC-07	Operating keyboard by touch control	15
		15

Duty D: Data Processing Fundamental Concepts

CC-08	Describing the role of computer system hardware components	5
CC-09	Demonstrating a knowledge of copyright laws	5
CC-10	Describing the organization of auxiliary storage	5
CC-11	Recognizing the organization and use of internal data structures	5
CC-12	Recognizing relationships among types of computer software---operating systems, programming languages and applications	8
CC-13	Installing, maintaining and backing up media	3
CC-14	Using numbering systems	5
CC-15	Planning, coding and testing a simple program using structured techniques	5
CC-16	Describing the integral relationship among word processing and data processing in management information systems	5
CC-17	Demonstrating an understanding of data communication (teleprocessing) concepts	4
CC-18	Describing, illustrating and using a computer spreadsheet	6
		56

Quarter 1 Total Hours 121

QUARTER 2

Duty D: Data Processing Fundamental Concepts (Continued)

CC-19	Using a data base program	10
CC-20	Using graphics software for charts, graphs and other illustrations	8
CC-21	Using electronic mail	3
		21

Duty E: Word Processing Fundamental Concepts

CC-22	Previewing word processing techniques	4
CC-23	Designing a document using word processing software	4
CC-24	Entering and editing text using word processing software	8
CC-25	Finishing a document using word processing software	10
CC-26	Printing a document using word processing software	8
		34

Duty F: Data Control Functions

DE-01	Setting up work station	2
DE-02	Previewing data control functions	3
DE-03	Scheduling and monitoring jobs	2
DE-04	Checking out and returning tapes or disks from the tape-disk library	2
DE-05	Preparing backup files	3
DE-06	Monitoring disk usage	2
DE-07	Copying data	3
DE-08	Previewing entering/verifying process	4
DE-09	Searching tape, disk or diskette for information	3
DE-10	Recognizing system or operation errors	2
DE-11	Assessing/handling errors in source input	4
DE-12	Modifying records and correcting data entry errors	6
DE-13	Entering data from source documents (with or without program control)	6
DE-14	Transmitting data	2
DE-15	Preparing keyed source document for return to supervisor	2
DE-16	Adding new records	6
DE-17	Recovering data after incorrectly removing tape or diskette	3
DE-18	Recovering data after power failure	3
DE-19	Performing emergency shutdown procedures	3
DE-20	Terminating operation	2
DE-21	Deleting job files	2
DE-22	Receiving data from remote units	3
DE-23	Entering data from optical character recognition device (OCR) (with or without program control)	2
		70
	Quarter 2 Total Hours	125

QUARTER 3

Duty G: Problem Analysis

PR-01	Identifying specific user needs	6
PR-02	Designing output	8
PR-03	Determining input required for program	3
PR-04	Developing algorithm using pseudocode/flowchart	15
PR-05	Detailing all formulas and calculations	6
		38

Duty H: Coding Programs

PR-06	Coding application programs using structured techniques	80
		80

Quarter 3 Total Hours	118

QUARTER 4

Duty H: Coding Programs (Continued)

PR-07	Coding application programs using file handling techniques	120
		120
	Quarter 4 Total Hours	120

QUARTER 5

Duty H: Coding Programs (Continued)

PR-07	Coding application programs using file handling techniques (Continued)	60
PR-08	Developing test data to validate program	8
PR-09	Desk checking source program for errors	6
PR-10	Analyzing computer output for accuracy following test run	6
PR-11	Debugging programs with or without computer aid	10
		90

Duty I: Program Documentation

PR-12	Developing a documentation narrative	10
PR-13	Preparing operation documentation	10
PR-14	Preparing user documentation	10
PR-15	Updating documentation for program	4
		34
	Quarter 5 Total Hours	124

QUARTER 6

Duty J: Microcomputer Applications

MA-01	Describing alternative operating systems	20
MA-02	Demonstrating knowledge of data communications/ teleprocessing systems	20
MA-03	Describing networking alternatives and arrangements	15
MA-04	Installing applications software package (in-house)	20
MA-05	Installing applications software package (commercial)	20
MA-06	Changing configuration of already-installed package	15
MA-07	Modifying source code or programs to alter their performance	10
MA-08	Backing up and restoring software and data	10
		130

Quarter 6 Total Hours	130
Total Program Hours	738

SEMESTER 1

Duty A: Employability Skills

PE-01	Completing the job application process	10
PE-02	Demonstrating desirable work traits	2
PE-03	Demonstrating an understanding of the importance of the application-related security requirements	2
		14

Duty B: Data Processing History and Overview

CC-01	Demonstrating a knowledge of the information processing cycle	5
CC-02	Analyzing the impact of computers on our society	5
CC-03	Identifying computer languages by name and major purpose	5
CC-04	Describing the classifying factors of types of computers	5
CC-05	Using computers in industry	10
CC-06	Examining careers in information systems	6
		36

Duty C: Keyboarding

CC-07	Operating keyboard by touch control	15
		15

Duty D: Data Processing Fundamental Concepts

CC-08	Describing the role of computer system hardware components	5
CC-09	Demonstrating a knowledge of copyright laws	5
CC-10	Describing the organization of auxiliary storage	5
CC-11	Recognizing the organization and use of internal data structures	5
CC-12	Recognizing relationships among types of computer software---operating systems, programming languages and applications	8
CC-13	Installing, maintaining and backing up media	3
CC-14	Using numbering systems	5
CC-15	Planning, coding and testing a simple program using structured techniques	5
CC-16	Describing the integral relationship among word processing and data processing in management information systems	5
CC-17	Demonstrating an understanding of data communication (teleprocessing) concepts	4
CC-18	Describing, illustrating and using a computer spreadsheet	6
CC-19	Using a data base program	10
CC-20	Using graphics software for charts, graphs and other illustrations	8
CC-21	Using electronic mail	3
		77

Duty E: Word Processing Fundamental Concepts

CC-22	Previewing word processing techniques	4
CC-23	Designing a document using word processing software	4
CC-24	Entering and editing text using word processing software	8

CC-25	Finishing a document using word processing software	10
CC-26	Printing a document using word processing software	8
		34
	Semester 1 Total Hours	176

SEMESTER 2

Duty F: Data Control Functions

DE-01	Setting up work station	2
DE-02	Previewing data control functions	3
DE-03	Scheduling and monitoring jobs	2
DE-04	Checking out and returning tapes or disks from the tape-disk library	2
DE-05	Preparing backup files	3
DE-06	Monitoring disk usage	2
DE-07	Copying data	3
DE-08	Previewing entering/verifying process	4
DE-09	Searching tape, disk or diskette for information	3
DE-10	Recognizing system or operation errors	2
DE-11	Assessing/handling errors in source input	4
DE-12	Modifying records and correcting data entry errors	6
DE-13	Entering data from source documents (with or without program control)	6
DE-14	Transmitting data	2
DE-15	Preparing keyed source document for return to supervisor	2
DE-16	Adding new records	6
DE-17	Recovering data after incorrectly removing tape or diskette	3
DE-18	Recovering data after power failure	3
DE-19	Performing emergency shutdown procedures	3
DE-20	Terminating operation	2
DE-21	Deleting job files	2
DE-22	Receiving data from remote units	3
DE-23	Entering data from optical character recognition device (OCR) (with or without program control)	2
		70

Duty G: Problem Analysis

PR-01	Identifying specific user needs	6
PR-02	Designing output	8
PR-03	Determining input required for program	3
PR-04	Developing algorithm using pseudocode/flowchart	15
PR-05	Detailing all formulas and calculations	6
		38

Duty H: Coding Programs

PR-06	Coding application programs using structured techniques	80
	Semester 2 Total Hours	188

SEMESTER 3

Duty H: Coding Programs (Continued)

PR-07	Coding application programs using file handling techniques	180
		180
	Semester 3 Total Hours	180

SEMESTER 4

Duty H: Coding Programs (Continued)

PR-08	Developing test data to validate program	8
PR-09	Desk checking source program for errors	6
PR-10	Analyzing computer output for accuracy following test run	6
PR-11	Debugging programs with or without computer aid	10
		30

Duty I: Program Documentation

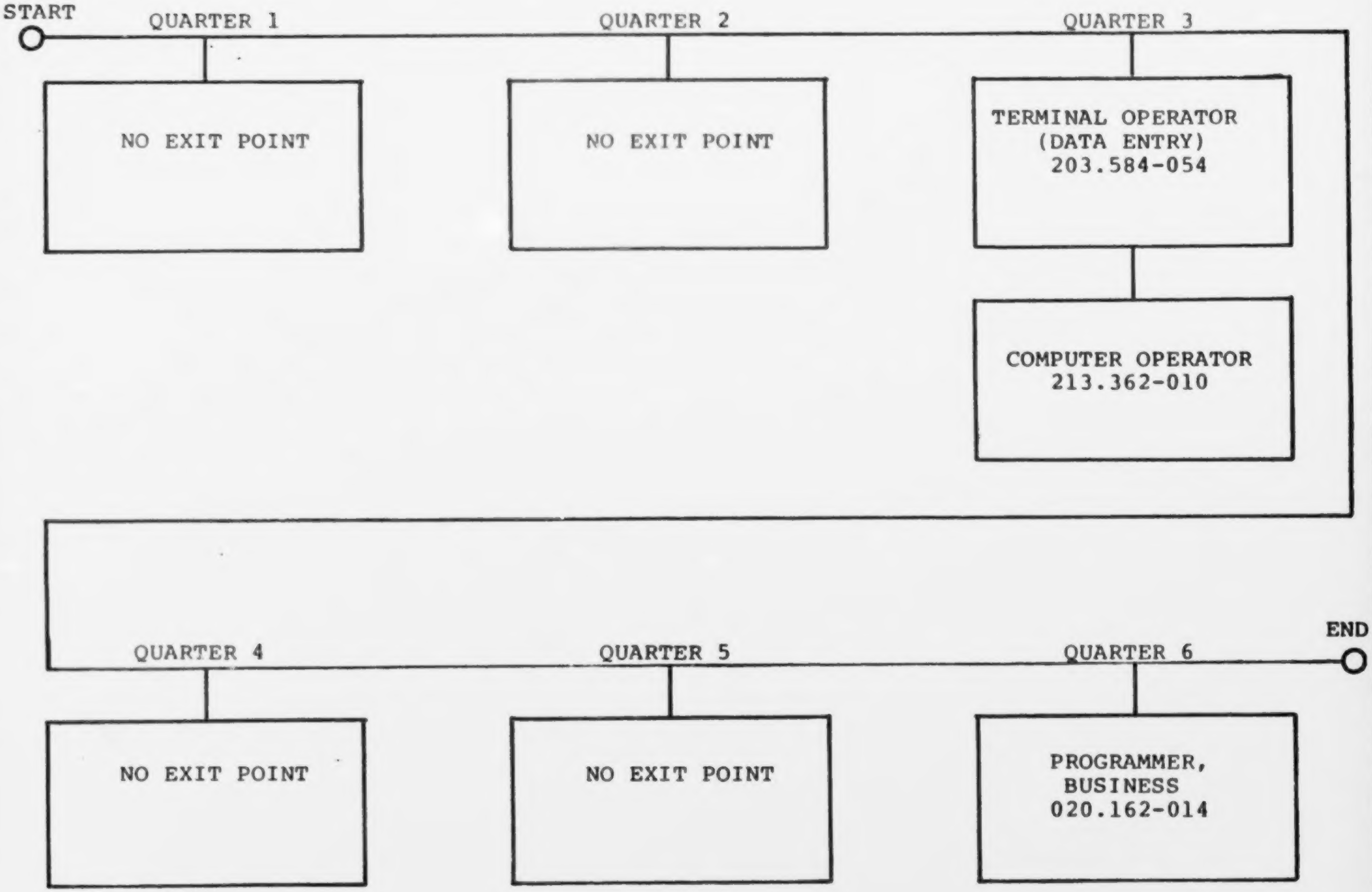
PR-12	Developing a documentation narrative	10
PR-13	Preparing operation documentation	10
PR-14	Preparing user documentation	10
PR-15	Updating documentation for program	4
		34

Duty J: Microcomputer Applications

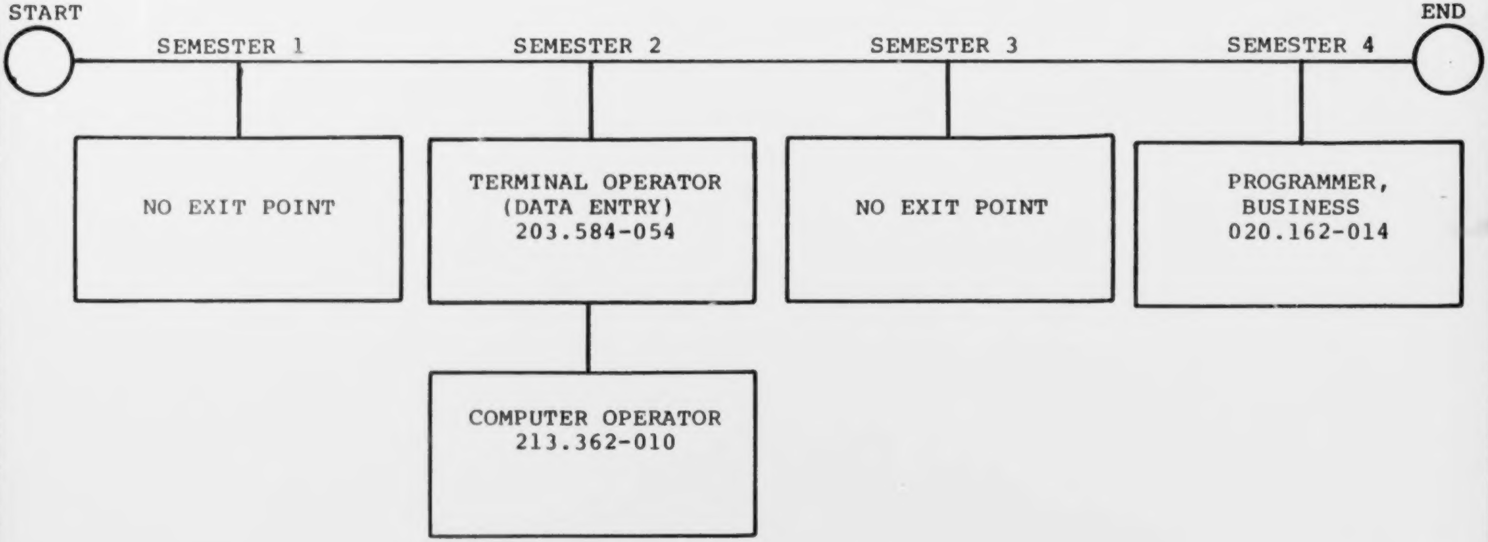
MA-01	Describing alternative operating systems	20
MA-02	Demonstrating knowledge of data communications/ teleprocessing systems	20
MA-03	Describing networking alternatives and arrangements	15
MA-04	Installing applications software package (in-house)	20
MA-05	Installing applications software package (commercial)	20
MA-06	Changing configuration of already-installed package	15
MA-07	Modifying source code or programs to alter their performance	10
MA-08	Backing up and restoring software and data	10
		130

Semester 4 Total Hours	194
Total Program Hours	738

QUARTER SYSTEM EXIT POINT DIAGRAM


START
QUARTER 1
NO EXIT POINT
QUARTER 2
NO EXIT POINT
QUARTER 3
TERMINAL OPERATOR (DATA ENTRY) 203.584-054
COMPUTER OPERATOR 213.362-010
QUARTER 4
NO EXIT POINT
QUARTER 5
NO EXIT POINT
QUARTER 6
PROGRAMMER, BUSINESS 020.162-014
END

SEMESTER SYSTEM EXIT POINT DIAGRAM


START
SEMESTER 1
SEMESTER 2
SEMESTER 3
SEMESTER 4
END
NO EXIT POINT
TERMINAL OPERATOR (DATA ENTRY) 203.584-054
NO EXIT POINT
PROGRAMMER, BUSINESS 020.162-014
COMPUTER OPERATOR 213.362-010

COMPETENCY-BASED EDUCATION REQUIREMENTS

A listing of Competency-Based Education (CBE) Requirements is provided on the following page. CBE Requirements are integrated into each task or unit competency and can be found on the Evaluation of Performance page under the category Applicable Competency-Based Education Requirements.

COMPETENCY BASED EDUCATION REQUIREMENTS LEGEND

Reading Skills
a. Distinguishes between fact and opinion
b. Interprets semantic relationships
c. Recognizes explicitly stated main ideas, details, sequence of events, and cause and effect relationships
d. Follows directions
e. Interprets figurative language
f. Recognizes propaganda techniques
g. Recognizes implicitly stated main ideas, details, sequence of events and cause and effect relationships
h. Makes predictions, generalizations and comparisons
i. Draws conclusions
j. Interprets graphic information, instructions and labeling information, forms and applications, transportation information and occupational and career information
k. Recognizes relevance of data
l. Recognizes appropriate reference resources
m. Locates information in reference materials

Math Skills
a. Translates from word to numerals and the reverse
b. Orders fractions, decimals or percents
c. Translates from decimals to percents and the reverse
d. Translates from fractions to percents and the reverse
e. Translates from fractions to decimals and the reverse
f. Selects appropriate operations for a given problem situation
g. Computes with whole numbers, fractions, decimals and percents
h. Applies properties of operations
i. Solves simple word problems
j. Applies proportions
k. Applies formulas
l. Computes the mean and median
m. Determines probabilities
n. Organizes the data into tables, charts and graphs
o. Interprets data in the form of tables, charts and graphs
p. Identifies customary or metric units to measure lengths, area, volume, weight, time and temperature
q. Applies customary or metric units of measurement to determine length, area, volume, weight, time and temperature
r. Estimates numbers (results) using round numbers, with or without units of measurement
s. Determines amounts of money
t. Identifies sets of points using standard names
u. Identifies geometric relations and properties
v. Identifies points on cartesian coordinates

Problem Solving Skills
a. Distinguishes between fact and opinion
b. Recognizes main ideas, details, sequences of events, and cause and effect relationships
c. Recognizes appropriate reference sources
d. Locates information in reference materials
e. Estimates outcomes, with or without units of measurements
f. Draws conclusions
g. Interprets non-graphic instructions, labels, forms and applications
h. Recognizes relevance of data
i. Organizes data into tables, charts and graphs
j. Interprets data in the form of tables, charts and graphs
k. Makes predictions, generalizations and comparisons
l. Solves simple word problems

Communication Skills
a. Composes sentences
b. Organizes information
c. Writes paragraphs
d. Interprets aural communications
e. Composes oral directions and questions
f. Uses formal and informal speaking styles

UNIT GUIDES

Unit guide sheets, the core of a curriculum guide, serve as instructional resources which aid the instructor in planning the instruction and/or performance related to tasks or unit competencies.

Specific unit guide components include:

Task of Unit Competency: The smallest division of work in which a measurable output occurs.

Performance Statement: What students are expected to accomplish.

Instructional Materials: Suggested materials used to assist in the presentation of instructional activities.

Class/Lab Hours: The estimated minimum time for completing the instructional activities and the evaluation. Instructors must use their judgment in determining the percentage of total time spent in the class and in the lab.

Evaluation of Performance: Includes criterion referenced measures and suggested testing activities and resources pertinent to accomplishing the task or unit competency.

TASK OR UNIT COMPETENCY

PE-01 Completing the job application process

PERFORMANCE STATEMENT

Complete the job application process.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. How a job search is conducted
b. How to write a resume
    1. Accurately and honestly filling out a job application
    2. Preparing letter of application
c. Steps involved in preparing for a job interview
d. What actually happens during a job interview
e. Preparing a follow-up letter

Provide Demonstration On:

a. Assessing abilities and interests
b. Identifying job contacts
c. Obtaining necessary documents for securing employment
d. Writing a resume
e. Applying for a job
f. Researching and evaluating potential employer
g. Preparing questions for an interview
h. Dressing appropriately for a job interview
i. Items and types of information to take to a job interview
j. How to conduct oneself on an interview
k. Preparing a follow-up letter

INSTRUCTIONAL MATERIALS

Textbooks:

a. Georgia, Data Processing Curriculum Guide (Refer to the Employability Skills section.)
b. U.S. Army Reserve pamphlets

Equipment and Supplies:

a. Necessary documents (birth certificate, social security card, work permit)
b. Job resource documents (newspaper, magazine, etc.)
c. Bulletin board

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 5

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

Provide Practical Application On:

a. Writing a resume
b. Filling out job applications
c. Simulating a job interview situation
d. Preparing a follow-up letter

INSTRUCTIONAL MATERIALS

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given necessary information and supplies, the student will correctly prepare a job application, resume, letter of application, and follow-up letter. The student will score at least 75% on a written test covering the job application process.

Suggested Testing Activities And Resources

a. Students should be given a performance test to assess their ability to demonstrate the application process.

b. Have a guest speaker trained in interviewing techniques address the class.

c. Using appropriate written testing procedures, students will demonstrate a knowledge of: how a job search is conducted; the steps involved in preparing for a job interview; what actually happens during a job interview; and preparing a follow-up letter.

d. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

PE-02 Demonstrating desirable work traits

PERFORMANCE STATEMENT

Demonstrate desirable work traits.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Job responsibilities
b. Job attitudes
c. Reasons people are fired

Provide Demonstration On:

a. Types of job responsibilities
b. Types of job attitudes
c. Reasons people are fired

Provide Practical Application On:

a. Desirable employability characteristics
b. Undesirable employability characteristics

INSTRUCTIONAL MATERIALS

Textbooks:

a. Georgia, Data Processing Curriculum Guide (Refer to the Employability Skills section.)
b. Russon amd Wallace, Personality Development for Work

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given necessary information, the student will demonstrate desirable work traits throughout the course.

Suggested Testing Activities And Resources

a. Students should be given a performance test to assess their ability to demonstrate desirable work traits.

b. Using appropriate written testing procedures, students will demonstrate a knowledge of job responsibilities and reasons why people are fired.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

PE-03 Demonstrating an understanding of the importance of the application-related security requirements

PERFORMANCE STATEMENT

Demonstrate an understanding of the importance of the application - related security requirements.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Credit investigation and its importance
b. Use of fingerprint check through FBI files
c. Requirements of a polygraph/written "honesty" test/stress test
d. The use of urinalysis as a means of drug detection
e. The employer's need to verify all data reported on application--stated degrees, employment dates, etc.
f. The employer's need to consult all references for verification

Provide Demonstration On:

a. Sample credit report
b. Samples of falsified application forms

INSTRUCTIONAL MATERIALS

Textbooks:

a. U.S. Department of Labor pamphlets
b. Individual business pamphlets

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given necessary information, the student will list and discuss the importance of application - related security requirements with 75% accuracy or better.

Suggested Testing Activities And Resources

a. Students will be given a written test to demonstrate their knowledge of application - related security requirements.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j.i,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-01 Demonstrating a knowledge of the information processing cycle

PERFORMANCE STATEMENT

Demonstrate a knowledge of the information processing cycle.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Basic data processing cycle--input, process, and output
b. Function of a computer program
c. Types of equipment found in typical computer centers

Provide Demonstration On:

a. Flow of data
b. Computer system components
c. A typical program application

Provide Practical Application On:

a. Flow of data
b. Computer system

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will diagram the basic data processing cycle with 75% accuracy or better.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of data processing concepts and trends.

b. Field trip.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-02 Analyzing the impact of computers on our society

PERFORMANCE STATEMENT

Analyze the impact of computers on our society.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Advantages of computers in society
b. Threat of the invasion of privacy by computers
c. Computer crime
d. Impersonality of computer records
e. Impact of computers on people
f. Impact of computers on organizations
g. Computers tomorrow

Provide Demonstration On:

a. Ethics attitude survey
b. Computer applications

Provide Practical Application On:

a. Computer-controlled devices
b. Current news articles about computer crimes
c. The latest in computer technology

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency))
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency))

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector
f. Newspapers

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will analyze, with 75% accuracy or better, the impact of computers on our society and describe some of the ways computers aid businesses, communities, and individuals.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the impact of computers on our society.

b. Guest speaker from reputable business to speak to the class on the ways computers are used in his/her business.

c. Use resources provided in the Instructional Materials section on the previous page.

d. Field trip.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-03 Identifying computer languages by name and major purpose

PERFORMANCE STATEMENT

Identify computer languages by name and major purpose.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Machine languages
b. Assembly languages
c. High-level languages
    1. Basic
    2. Cobol
    3. Fortran
    4. RPG
    5. Algol, Pascal, and ADA
    6. Other languages
d. Differences between compiled and interpretive languages

Provide Demonstration On:

a. Selecting applicable languages to demonstrate
b. Translation process of instructions written in an assembly or high-level programming language into the machine language of a computer
c. Features of major high-level programming languages
d. Uses of major high-level programming languages

Provide Practical Application On:

High-level language program

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 3

Performance Objective (CRM)

Given a written test, the student will outline the characteristics of machine languages, assembly languages, and high-level languages; explain how instructions written in an assembly or high-level programming language can be translated into the machine language of a computer; and describe some of the features and uses of at least five of the major high-level programming languages. The student must achieve a level of 75% accuracy or better.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the characteristics, translation process, and features and uses of machine languages, assembly languages, and high level languages.

b. If suitable software is available, students will demonstrate graphically the differences in the same program at different language levels.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-04 Describing the classifying factors of types of computers

PERFORMANCE STATEMENT

Describe the classifying factors of types of computers.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

Computer classifications
1. Processing
2. Speed
3. Memory capacity
4. Number of peripherals computer can support

Provide Demonstration On:

a. Identifying types of computers
b. Demonstrating hardware and software

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Sanders, Computers Today

A/Vs:

a. Enclyclopedia Britanica Series, "Understanding Computers" (Filmstrip)
b. South-Western, "Introduction to Automated Data Processing" (Filmstrip)

Equipment and Supplies:

a. Filmstrip projector
b. Filmstrips
c. Microcomputer
d. Overhead projector
e. Transparencies

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 0

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test on the characteristics and uses of macros, minis, and micros, the student will identify, with 70% accuracy, the differences in the three categories of computers.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their ability to identify the characteristics and uses of the three types of computers.

b. A field trip to observe a mainframe system and/or a mini system.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-05 Using computers in industry

PERFORMANCE STATEMENT

Use computers in industry.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Strategies for using computers
   1. Market forecasting
   2. Production plans
   3. Financial plans
   4. Effects on productivity
b. Design and production processes using computers
   1. Flexible manufacturing systems
   2. Computer-aided design
   3. Computer-aided manufacturing
   4. Robotics

Provide Demonstration On:

a. Computerized process central and production systems
b. CAD and CAM techniques with a plotter

Provide Practical Application On:

a. Drawing diagrams of computerized process control and production systems
b. Printing document of a building design or plotter

INSTRUCTIONAL MATERIALS

Textbooks:

a. Daggett, Badrkhan and Kruse, Computers and Information Technology
b. Sanders, Computers Today
c. Shelly and Cashman, Computer Fundamentals for an Information Age

Student Manuals:

a. Sanders, Computers Today
b. Shelly and Cashman, Computer Fundamentals for an Information Age

Equipment and Supplies:

a. Microcomputer
b. Plotter
c. CAD and CAM available software
d. Printer
e. Templates

ESTIMATED CLASS HOURS 4

ESTIMATED LAB HOURS 6

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will describe, with 75% accuracy, the uses of computers in industry.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the uses of a computer in a manufacturing environment.

b. In drafting lab, demonstrate the use of CAD software on microcomputer and plotter.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-06 Examining careers in information systems

PERFORMANCE STATEMENT

Examine alternative careers in information systems.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Preparing for a career in data processing
   1. Skills
   2. Education
   3. Experience
b. Choosing a career in data processing
   1. Types of jobs
   2. Rating jobs
   3. Job advancement
c. Selecting an employer in data processing
   1. Business
   2. Government
d. Structure of data processing center
e. Roles played by personnel employed within a data processing center

Provide Demonstration On:

a. Showing filmstrips on data processing careers
b. Drawing a career pyramid
c. Completing sample job rating system

Provide Practical Application On:

a. Completing a PEERS rating system
b. Drawing a career pyramid
c. Completing a career report on a job title
d. Completing employment test

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Lambrecht, Information Processing
b. Robichaud, Muscat and Hall, Introduction to Data Processing
c. Shelly and Cashman, Computer Fundamentals for an Information Age

A/Vs:

a. Educational Dimensions Group, "Careers, Jobs in the 80's" (Filmstrip)
b. Robichaud, Muscat and Hall, "Introduction to Data Processing" (Disk)

Student Manuals:

a. Robichaud, Muscat and Hall, Introduction to Data Processing Work Kit
b. Shelly and Cashman, Computer Fundamentals for an Information Age

Equipment and Supplies:

a. Overhead projector and transparencies
b. Work kit activity sheet

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 1

Performance Objective (CRM)

Given instructions on alternative careers in data processing, the student will prepare a report, according to the instructor's specifications, giving skills, education, and experience necessary to succeed in a chosen job title in information systems.

Suggested Testing Activities And Resources

a. Report will be prepared using word processing software on a job title in the field of data processing. (possible oral)

b. Career ladder will be prepared on some area of interest in the field of data processing.

c. Filmstrips will be presented on Computer Careers in the 80's.

d. Personal Manager from computer related business as speaker.

e. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,gh,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-07 Operating keyboard by touch control

PERFORMANCE STATEMENT

Operate keyboard by touch control.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Keyboard operations by touch control
b. Correct finger usage

Provide Demonstration On:

a. Keyboard operations by touch control
b. Correct finger usage

Provide Practical Application On:

a. Keyboard operations by touch control
b. Correct finger usage

INSTRUCTIONAL MATERIALS

Textbooks:

a. McLeon, Davison and Santon
   Keyboarding for Everyone
b. Operations manual

Equipment and Supplies:

a. Keyboard
b. Information to keyboard

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 12

Performance Objective (CRM)

Given the necessary equipment and information, the student will demonstrate, with 95% accuracy, keyboard operation by touch control.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to operate a keyboard by touch control.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-08 Describing the role of hardware components of a computer system

PERFORMANCE STATEMENT

Describe the role of hardware components of a computer system.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. The functions of internal and external storage
b. The central processing unit of a computer
c. The purposes of input and output devices
d. Criteria for selecting hardware

Provide Demonstration On:

a. Input and output devices
b. Central processing unit components

Provide Practical Application On:

a. Identifying the basic components of a digital computer system
b. Identifying input/output devices and media
c. Choosing the best equipment for a job

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will identify and describe, with 75% accuracy or better, the role of hardware components of a computer system.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the role of hardware components of a computer system.

b. Remove a computer's outer covering and point out the processor and main memory.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-09 Demonstrating a knowledge of copyright laws

PERFORMANCE STATEMENT

Demonstrate a knowledge of copyright laws.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Current copyright laws regarding software
b. Consequences of abusing copyright laws

Provide Demonstration On:

Copyright information in software manuals

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 0

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will demonstrate, with 75% accuracy or better, a knowledge of copyright laws.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of copyright laws.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-10 Describing the organization of auxiliary storage

PERFORMANCE STATEMENT

Describe the organization of auxiliary storage.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Terms used to describe data in auxiliary storage--data bits, bytes, fields, records, files, and data bases
b. Kinds of files--master, detail
c. Types of file access--sequential, random, indexed-sequential

Provide Demonstration On:

a. Relationship among fields, bits, bytes, records, files and data bases
b. Differences among sequential, random, and indexed-sequential file access

Provide Practical Application On:

a. Everyday examples to illustrate bits, bytes, fields, records, files, and data bases
b. Uses of sequential files
c. Uses of random files
d. Uses of indexed-sequential files

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will describe the relationship between fields, records, bits, bytes, data bases, and files and list the distinguishing characteristics of sequential, random, and indexed-sequential files with 75% accuracy or better.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the relationship among fields, records, files, bits, bytes and data bases.

b. Students will compare making selections from an eight track and record to illustrate the differences between sequential and random file access.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-11 Recognizing the organization and use of internal data structures

PERFORMANCE STATEMENT

Recognize the organization and use of internal data structures.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Definition of data structure
b. Descriptions of variables, vectors, tables, linked lists, literals and constants
c. How vector and table elements are referenced

Provide Demonstration On:

a. Variables
b. Vectors
c. Tables
d. Literals
e. Constants
f. Linked lists
g. Text

Provide Practical Application On:

a. Uses of variables
b. Uses of vectors
c. Uses of tables
d. Uses of literals
e. Uses of constants
f. Uses of linked lists
g. Uses of text

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will define an internal data structure and name, describe, and list a typical application for various types of data structures with 75% accuracy or better.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the organization of data structures.

b. Have students collect examples of one-dimensional and two-dimensional tables from magazines, newspapers, and comparative advertising.

c. Have students prepare linked lists that contain secret messages to their classmates who must in turn properly follow the links to decipher the secret message.

d. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-12 Recognizing relationships among computer software: operating systems, programming languages and applications

PERFORMANCE STATEMENT

Recognize relationships among computer software: operating systems programming languages and applications.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

- a. Types of computer applications software
- b. Differences of operating systems, programming languages, and applications software
- c. Fourth generation languages

Provide Demonstration On:

- a. Applications software
- b. Programming language software
- c. Operating systems

Provide Practical Application On:

- a. Uses of applications software
- b. Uses of programming language software
- c. Uses of operating systems

INSTRUCTIONAL MATERIALS

Textbooks:

- a. Clark and Drum, Structured Basic
- b. Clark and Lambrecht, Information Processing
- c. Orilia, Introduction to Business Data Processing
- d. Shelly and Cashman, Computer Fundamentals for an Information Age
- e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

- a. Clark and Lambrecht, "Information Processing" (Disk)
- b. Orilia, "Introduction to Business Data Processing" (Transparency)
- c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

- a. Clark and Drum, Structured Basic
- b. Clark and Lambrecht, Information Processing
- c. Orilia, Introduction to Business Data Processing
- d. Shelly and Cashman, Computer Fundamentals for an Information Age
- e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

- a. Computer
- b. Disk
- c. Practice set
- d. Current magazines
- e. Overhead projector

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 5

Performance Objective (CRM)

Given a written test, the student will recognize, with 75% accuracy or better, relationships among types of computer software--operating systems, programming languages, and applications software.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the relationships among computer software.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-13 Installing, maintaining and backing up media

PERFORMANCE STATEMENT

Install, maintain and back up media.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Care and maintenance of storage media
b. Installation procedures
c. Back up procedures

Provide Demonstration On:

a. Care and maintenance of storage media
b. Installation procedures
c. Back up procedures

Provide Practical Application On:

a. Care and maintenance of storage media
b. Installation procedures
c. Back up procedures

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

Performance Objective (CRM)

a. Given a written test, the student will demonstrate, with 75% accuracy or better, the knowledge of proper care and maintenance of storage media.

b. Given a performance test, the student will install storage media and perform back up procedures according to the manufacturer's instructions.

Suggested Testing Activities And Resources

a. Students will be given a performance test to demonstrate the correct set up and maintenance of software media.

b. Obtain a defective floppy diskette, hard disk, and magnetic tape and let students examine them for noticeable damage.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-14 Using numbering systems

PERFORMANCE STATEMENT

Use numbering systems.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Need for binary and hexadecimal numbering systems in computer applications
b. Basic concepts of binary numbering system
c. Using hexadecimal numbering system
   1. Addition using hexadecimal numbers
   2. Subtraction using hexadecimal numbers
d. Using octal numbering system
   1. Addition using octal numbers
   2. Subtraction using octal numbers
e. Conversion from one base to another

Provide Demonstration On:

a. Conversion of decimal/binary
b. Conversion of decimal/hexadecimal
c. Representation of input/output data in binary and hexadecimal

Provide Practical Application On:

a. Using the decimal system
b. Using the binary system
c. Computational uses of the hexadecimal numbering system
d. Representation of input/output data in binary and hexadecimal

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 2

Performance Objective (CRM)

Given a written test, the student will demonstrate, with 75% accuracy or better, the relationship between the decimal, binary, and hexadecimal numbering systems.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the use of numbering systems.

b. Create class drills on numbering systems.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-15 Planning, coding and testing a program using structured techniques

PERFORMANCE STATEMENT

Plan, code and test a program using structured techniques.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operating instructions to be used
b. Statement of problem
c. Planning and documentation
d. Design
e. Coding
f. Testing and debugging

Provide Demonstration On:

a. Operating equipment
b. Sample programs
c. Proper planning and documentation

Provide Practical Application On:

a. Operating equipment
b. Planning and documentation
c. Coding
d. Testing and debugging

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given materials and program specifications, the student will plan, document, code, and test a simple program to produce correct output.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of planning, coding, and testing a simple program using structured techniques.

b. Use resource provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-16 Describing the integral relationship between word processing and data processing in management information systems

PERFORMANCE STATEMENT

Describe the integral relationship between word processing and data processing in management information systems.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. The similarities and differences in data processing and word processing
b. Data processing functions
c. Word processing functions
d. The benefits of the integration of data processing and word processing into information processing

Provide Demonstration On:

a. Data processing software
b. Word processing software
c. Integrated software

Provide Practical Application On:

a. Uses of data processing software
b. Uses of word processing software
c. Uses of integrated software

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 3

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will describe, with 75% accuracy or better, the integral relationship between word processing and data processing in management information systems.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the integral relationship among word processing, data processing, and other management information systems in a modern office.

b. Have students try out an application that combines both data processing and word processing.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-17 Demonstrating an understanding of data communication (teleprocessing) concepts

PERFORMANCE STATEMENT

Demonstrate an understanding of data communication (teleprocessing) concepts.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. The components of a modern data communications network
b. Line speeds and modes of transmission
c. Line configurations
d. Computer operations in a data communications environment

Provide Demonstration On:

a. Flowchart of basic configuration for a data communication system
b. Data communication network using different types of data communicated channels
c. Computer systems in data communications environment

Provide Practical Application On:

a. The basic types of communication channels
b. Uses of computer systems in data communication environment

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

a. Clark and Lambrecht, "Information Processing" (Disk)
b. Orilia, "Introduction to Business Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Clark and Lambrecht, Information Processing
c. Orilia, Introduction to Business Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Computer
b. Disk
c. Practice set
d. Current magazines
e. Overhead projector

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will demonstrate, with 75% accuracy or better, a general understanding of data communication concepts.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of data communication concepts.

b. Have students collect articles and advertisements about networking and report their findings to the class.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-18 Describing and illustrating the use of a computer spreadsheet

PERFORMANCE STATEMENT

Describe and illustrate the use of a computer spreadsheet.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Equipment requirements
   1. Hardware
   2. Software
b. Spreadsheet functions
c. Spreadsheet applications
   1. Personal
   2. Business

Provide Demonstration On:

a. Using equipment
b. Using software
c. Using system commands

Provide Practical Application On:

a. Operating equipment
b. Operating software
c. Completing activity sheets

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Lambrecht, Information Processing
b. Applicable resource guides

Student Manuals:

MECC, The Electronic Spreadsheet Manual

Equipment and Supplies:

a. Computer
b. Printer
c. VisiCalc software
d. MECC template diskette
e. Applicable software

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 4

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given materials and instructions on the use of electronic spreadsheets, the student will complete an activities handout with 70% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of spreadsheet uses and operation.

b. Students will be given a performance test to assess their ability to use electronic spreadsheet commands.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-19 Using a data base program

PERFORMANCE STATEMENT

Use a data base program.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Definition of data base software
b. Purpose for data bases
c. Data base file handling techniques
d. Data base management systems
e. Creating a data base
f. Responsibilities of data base manager
g. Flexibility

Provide Demonstration On:

a. Creating a data base
b. Inserting records in a data base
c. Changing records in a data base
d. Deleting records from a data base

Provide Practical Application On:

a. Creating a data base
b. Inserting records in a data base
c. Changing existing records in a data base
d. Deleting records from a data base

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Drum, Structured Basic
b. Rademacher and Gibson, An Introduction to Computers and Information Systems
c. Robichaud, Muscat and Hall, Introduction to Data Processing
d. Shelly and Cashman, Computer Fundamentals for an Information Age
e. Shelly and Cashman, Introduction to Computers and Data Processing
f. Applicable resource guides

Student Manuals:

a. Rademacher and Gibson, An Introduction to Computers and Information Systems
b. Shelly and Cashman, Computer Fundamentals for an Information Age

Equipment and Supplies:

a. Microcomputer
b. Applicable software
c. Student guides
d. Student activities

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 7

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given instruction on the elements and concepts of data bases and necessary equipment and supplies, the student will correctly enter and retrieve data using a data base program.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the fundamentals of data bases.

b. Speaker from business community to discuss uses of data bases.

c. Report of the principles of one of the best known data base management packages.

d. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-20 Using graphics software for charts, graphs, and other illustrations

PERFORMANCE STATEMENT

Use graphics software for charts, graphs, and other illustrations.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Use of pie charts, bar charts, histograms, graphs
b. Use of graphics for drawing illustrations

Provide Demonstration On:

a. Use of pie charts, graphs, bar charts, histograms
b. Drawing pictures and other illustrations

Provide Practical Application On:

a. Drawing pie charts, graphs, bar charts, histograms
b. Drawing pictures and other illustrations

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable system software guide
b. Presley, A Guide to Programming in Applesoft
c. Zabinski, Introduction to TRS-80 Level II Basic and Computer Programming

Equipment and Supplies:

a. Microcomputer
b. Applicable software
c. Student activities

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 5

Performance Objective (CRM)

Given a high-level language software package with graphics capabilities, the microcomputer, instructions and materials, the student will demonstrate the capabilities of graphics software for charts, graphs, and other illustrations according to written and demonstrated instructions.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of graphics software and its use for charts, graphs, and other illustrations.

b. Students will be given a performance test to assess their ability to demonstrate the capabilities of graphics software for charts, graphs, and other illustrations.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-21 Using electronic mail

PERFORMANCE STATEMENT

Use electronic mail.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Definition of electronic mail
b. Methods of transmission
c. Devices used to transmit
d. Advantages over conventional mail
e. Data conversion before and after transmission
f. Common users, (law enforcement, financial institutions, businesses, etc.)
g. Preparing data for transmission
h. Software needed

Provide Demonstration On:

a. Methods of transmission
b. Preparing data for transmission
c. Operation of equipment
d. Use of software

Provide Practical Application On:

a. Preparing data for transmission
b. Operation of equipment

INSTRUCTIONAL MATERIALS

Textbooks:

a. Robichaud, Muscat and Hall, Introduction to Data Processing
b. Rademacher and Gibson, An Introduction to Computers and Information Systems

A/Vs:

Rademacher and Gibson, "An Introduction to Computers and Information Systems" (Transparency)

Student Manuals:

Rademacher and Gibson, An Introduction to Computers and Information Systems

Equipment and Supplies:

a. Microcomputer
b. Applicable software
c. Student guides
d. Student activites
e. Transparencies
f. Projector

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

Performance Objective (CRM)

Given a microcomputer, electronic mail transmission device, applicable software, manuals, materials and instructions, the student will demonstrate the use of electronic mail according to written and demonstrated specifications.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the use of electronic mail.

b. Students will be given a performance test to assess their ability to demonstrate the use of electronic mail.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,j,k,l,m

Math Skills: a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-22 Previewing word processing techniques

PERFORMANCE STATEMENT

Preview word processing techniques.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Definition of word processing
b. Word processing terminology
c. Types of word processors
d. Popular uses of word processing
e. How to backup word processing software
f. Loading word processing software
g. Responding to word processing menus

Provide Demonstration On:

a. Backup procedures for word processing software
b. Loading word processing software on the microcomputer
c. Responding to word processing menus

Provide Practical Application On:

a. Backup procedures for word processing software
b. Loading word processing software on the microcomputer
c. Responding to word processing menus

INSTRUCTIONAL MATERIALS

Textbooks:

a. Arntson, Word/Information Processing Concepts and Procedures
b. Popyk, Word and Information Processing
c. Popyk, Word Processing: Essential Concepts
d. Tandy, Superscript

A/Vs:

a. Apple, "Apple Works" (Software)
b. Tandy, "Superscripsit" (Cassette)

Student Manuals:

a. Brooks, Word Processing Practice and Applications
b. Meroney, Word Processing Applications in Practice
c. Tandy, Superscripsit

Equipment and Supplies:

a. Microcomputer
b. Applicable word processing software
c. Cassette tape and player
d. Student guides
e. Student activities

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 2

Performance Objective (CRM)

Given a word processing software package, a microcomputer, instructions and materials, the student will preview word processing techniques according to the instructor's specifications.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of word processing terminology, uses and techniques.

b. Students will be given a performance test to assess their ability to demonstrate knowledge of loading, backing up, and executing word processing software.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,b,d,e,f,g,h,i,k,o

Problem Solving Skills: b,c,d,e,g,h,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-23 Designing a document using word processing software

PERFORMANCE STATEMENT

Design a document using word processing software.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Designing types of documents
    1. Letters
    2. Reports
    3. Forms
b. Designing a document
    1. Name
    2. Layout
    3. Input/output

Provide Demonstration On:

a. Designing letters
b. Designing reports
c. Designing forms
d. Loading and using available software
e. Storing documents

Provide Practical Application On:

a. Setting up sample document
b. Storing sample document

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Lambrecht, Information Processing
b. Daggett, Badrkhan and Kruse, Computers and Information Technology
c. Robichaud, Muscat and Hall, Introduction to Data Processing

A/Vs:

a. Apple, "Apple Writer" (Software)
b. Apple, "Apple Works" (Software)

Equipment and Supplies:

a. Microcomputer
b. Overhead projector
c. Word processing software

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 3

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given instructions on the fundamentals of word processing document design, the student will outline, with 75% accuracy, the necessary steps to designing a document.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the elements of document design.

b. Flowchart will be drawn of sample assigned business report.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,b,d,e,f,g,h,i,k,o

Problem Solving Skills: b,c,d,e,g,h,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-24 Entering and editing text using word processing software

PERFORMANCE STATEMENT

Enter and edit text using word processing software.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Functions of editing
    1. Entering text
    2. Revising text
b. Basic editing
    1. Using menus
    2. Correcting errors
    3. Inserting text
    4. Deleting text
    5. Saving text

Provide Demonstration On:

a. Using menus with word processing software
b. Entering text with software
c. Using master and storage disks with software
d. Entering sample paragraph with software
e. Revising sample paragraph with software
f. Saving sample paragraph with software

Provide Practical Application On:

a. Loading word processing software
b. Entering text on software
c. Revising text on software
d. Saving text on software

INSTRUCTIONAL MATERIALS

Textbooks:

Clark and Lambrecht, Information Processing

A/Vs:

a. Apple, "Apple Writer" (Software)
b. Apple, "Apple Works" (Software)
c. Intentional Education, Inc., "Bank Street Writer" (Software)
d. Sierra On-Line, "Homeword" (Software)

Equipment and Supplies:

a. Microcomputer
b. Word processing software

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 7

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given instructions on the uses and functions of text editing functions, the student will correctly enter and edit data.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the functions of text editing.

b. Students will prepare a simple paragraph with revisions using text editing functions.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,g,i,k,l,m

Math Skills: f,n

Problem Solving Skills: b,d,f,h

Communication Skills: a,b,c

TASK OR UNIT COMPETENCY

CC-25 Finishing a document using word processing software

PERFORMANCE STATEMENT

Finish a document using word processing software.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Headers and footers
b. Page numbering
c. Pagination considerations
d. Using word processing directories
e. Compressing documents
f. Copying documents
g. Renaming documents
h. Deleting documents
i. Word processing work flow
j. File management techniques

Provide Demonstration On:

a. Creating headers and footers
b. Automatic page numbering
c. Determining new pages
d. File management techniques
e. Word processing work flow

Provide Practical Application On:

a. Creating headers and footers
b. Automatic page numbering
c. File management
d. Word processing work flow

INSTRUCTIONAL MATERIALS

Textbooks:

a. Arntson, Word/Information Processing Concepts and Procedures
b. Popyk, Word Processing and Information Systems, A Practical Approach to Concepts
c. Popyk, Word Processing: Essential Concepts
d. Tandy, Superscripsit

A/Vs:

a. Apple, "Apple Works" (Software)
b. Tandy, "Superscripsit" (Cassette)

Student Manuals:

a. Brooks, Word Processing Practice and Applications
b. Meroney, Word Processing Applications in Practice

Equipment and Supplies:

a. Microcomputer
b. Applicable word processing software
c. Cassette tape and player
d. Student guides
e. Student activities

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 7

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a word processing software package, a microcomputer, instructions and materials, the student will demonstrate the use of the document finishing process according to the instructor's written and demonstrated instructions.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of word processing document finishing processes.

b. Students will be given a performance test to assess their ability to use word processing document finishing processes.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,b,d,e,f,g,h,j,k,l

Problem Solving Skills: b,c,d,e,g,h,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

CC-26 Printing a document using word processing software

PERFORMANCE STATEMENT

Print a document using word processing software.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Use of applicable print commands
b. Equipment set up
c. Video display printing
    1. Monochrome
    2. Color
d. Paper printing
    1. Non-impact
        a. Ink jet
        b. Laser
    2. Impact
        a. Daisy wheel
        b. Dot-matrix

Provide Demonstration On:

a. Use of applicable print commands
b. Equipment set up

Provide Practical Application On:

a. Use of applicable print commands
b. Equipment set up

INSTRUCTIONAL MATERIALS

Textbooks:

a. Clark and Lambrecht, Information Processing
b. Robichaud, Muscat and Hall, Introduction to Data Processing

Equiment and Supplies:

a. Computer
b. Printer and paper
c. Word processing software

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 5

Performance Objective (CRM)

Given instructions on the types of document printing and output devices, the student will correctly print a document.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the elements of document printing.

b. Report will be prepared of the current and future development of printers.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,e,g,j,k

Math Skills: f,m,n,o

Problem Solving Skills: b,h,i,j

Communication Skills: b,d

TASK OR UNIT COMPETENCY

DE-01 Setting up work station

PERFORMANCE STATEMENT

Set up work station.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Powering up peripherals
b. Powering up CPU
c. Loading programs
d. Collecting source documents
e. Physical work station

Provide Demonstration On:

a. Powering up peripherals
b. Powering up CPU
c. Loading programs
d. Physical work station

Provide Practical Application On:

a. Powering up peripherals
b. Powering up CPU
c. Loading programs
d. Setting up work station

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable system manual
b. Applicable applications manual

Equipment and Supplies:

a. Computer
b. Peripherals
c. Program
d. Source documents

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given necessary equipment and materials, the student will set up a work station with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to set up a work station.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: o

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-02 Previewing data control functions

PERFORMANCE STATEMENT

Preview data control functions.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Flow of work
b. Productivity
c. Handling data with confidentiality
d. Control totals
e. Source document numbering
f. Accuracy of entry

Provide Demonstration On:

a. Routing procedures
b. Charting performance information
c. Data control

INSTRUCTIONAL MATERIALS

Textbooks:

a. Shelly and Cashman, Computer Fundamentals for an Information Age
b. Shelly and Cashman, Introduction to Computer and Data Processing

A/Vs:

Shelly and Cashman, "Introduction to Computer and Data Processing" (Transparency)

Student Manuals:

a. Shelly and Cashman, Computer Fundamentals for an Information Age
b. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Forms
b. Charts

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 0

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a written test, the student will discuss routing procedures with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their knowledge of data control functions.

b. Students will be given a written test to assess their knowledge regarding flow of work activities.

c. Students will be given a performance test to assess their knowledge of charting performance information.

d. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,c,g,i,j

Math Skills: o

Problem Solving Skills: a,b,f,h,j,k

TASK OR UNIT COMPETENCY

DE-03 Scheduling and monitoring jobs

PERFORMANCE STATEMENT

Schedule and monitor jobs.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Prioritizing jobs
b. Flow of work
c. Recognizing discrepancies
d. Distributing jobs
e. Charting productivity

Provide Demonstration On:

a. Prioritizing jobs
b. Routing procedures
c. Recognizing discrepancies
d. Charting productivity
e. Distributing jobs

Provide Practical Application On:

a. Prioritizing jobs
b. Routing procedures
c. Distributing jobs
d. Recognizing discrepancies
e. Charting productivity

INSTRUCTIONAL MATERIALS

Textbooks:

Clark and Lambrecht, Information Processing

Student Manuals:

Clark and Lambrecht, Information Processing

Equipment and Supplies:

a. Computers
b. Charts
c. Jobs to be processed

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given information on scheduling and monitoring jobs, the student will demonstrate, with 100% accuracy, the prioritizing of jobs, routing of information, recognition of discrepancies, distribution of jobs and charting productivity.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to prioritize jobs, route information, recognize discrepancies, distribute jobs and chart productivity.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,c,d,g,i,j,k,l,m

Math Skills: n,o

Problem Solving Skills: a,b,c,d,f,g,h,i,j

Communication Skills: b,c,d,e,f

TASK OR UNIT COMPETENCY

DE-04 Checking out and returning tapes or disks from tape/disk library

PERFORMANCE STATEMENT

Check out and return tapes or disks from tape/disk library.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Checkout rules/procedures
b. Location of library

Provide Demonstration On:

a. Checkout rules/procedures
b. Location of library

Provide Practical Application On:

a. Checking out media
b. Returning media

INSTRUCTIONAL MATERIALS

Equipment and Supplies:

a. Floor plan
b. Checkout form/chart
c. Copy of rules/procedures

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given necessary information and facilities, the student will use the correct procedures to check out and return tapes or disks to the tape/disk library.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to check out and return tapes or disks to the tape/disk library.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: d,l,m,

Problem Solving Skills: c,d

Communication Skills: a,d,e,f

TASK OR UNIT COMPETENCY

DE-05 Preparing backup files

PERFORMANCE STATEMENT

Prepare backup files.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Using system manual
b. Obtaining secondary storage device
c. Procedures for making backup files
d. Verifying backup completion
e. Proper storage of backup files
f. The need for backup files

Provide Demonstration On:

a. Using system manual
b. Backing up files
c. Verifying backups

Provide Practical Application On:

a. Backing up files
b. Verifying backups

INSTRUCTIONAL MATERIALS

Textbooks:

a. System manuals
b. System reference books

Equipment and Supplies:

a. Computers
b. Secondary storage devices

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and storage devices, the student will backup and verify files with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to backup and verify backups.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,g,j,l,m

Math Skills: o

Problem Solving Skills: b,c,d,g,j

Communication Skills: d

TASK OR UNIT COMPETENCY

DE-06 Monitoring disk usage

PERFORMANCE STATEMENT

Monitor disk usage.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Catalog/directory or file menu
b. Recognizing problems
c. Using system manual to correct problems

Provide Demonstration On:

a. Bringing up catalog/directory or file menu
b. Using system manual

Provide Practical Application On:

a. Bringing up catalog/directory or file menu
b. Using system manual

INSTRUCTIONAL MATERIALS

Textbooks:

Applicable system manual

Equipment and Supplies:

a. Computer
b. System
c. System manual

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given equipment and necessary supplies, the student will access the system catalog/directory or file menu and detect and correct possible problems with 75% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a written test on monitoring disk usage.

b. Students will be given a performance test to assess their ability to monitor disk usage.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: o

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-07 Copying data

PERFORMANCE STATEMENT

Copy data.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Machine operation
b. Copying data from one storage device to another
c. Verifying copy

Provide Demonstration On:

a. Machine operation
b. Copying data from one storage device to another
c. Verifying copy

Provide Practical Application On:

a. Machine operation
b. Copying data from one storage device to another
c. Verifying copy

INSTRUCTIONAL MATERIALS

Textbooks:

a. System manuals
b. System reference books

Equipment and Supplies:

a. Computer
b. Secondary storage devices

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and storage devices, the student will demonstrate, with 100% accuracy, the copying of data.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to copy data.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,e,g,l,m

Problem Solving Skills: b,c,d

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-08 Previewing entering/verifying process

PERFORMANCE STATEMENT

Preview entering/verifying process.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Reading instructions
b. Machine operation
c. Loading program
d. Entering data
e. Checking data

Provide Demonstration On:

a. Machine operation
b. Loading program
c. Entering data
d. Checking data

Provide Practical Application On:

a. Machine operation
b. Loading program
c. Entering data
d. Checking data

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable machine manual
b. Applicable program manual

Equipment and Supplies:

a. Computer or terminal
b. Applications program
c. Data

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 3

Performance Objective (CRM)

Given a written test, the student will follow directions and enter and verify data with 98% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to enter and verify data.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: o

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-09 Searching tape, disk, or diskette for information

PERFORMANCE STATEMENT

Search tape, disk, or diskette for information.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operating terminal
b. Loading software
c. Accessing directory
d. Searching file

Provide Demonstration On:

a. Operating terminal
b. Loading software
c. Accessing directory
d. Searching file

Provide Practical Application On:

a. Operating terminal
b. Loading software
c. Accessing directory
d. Searching file

INSTRUCTIONAL MATERIALS

Textbooks:

a. Appropriate system manual
b. Appropriate applications manual

Equipment and Supplies:

a. Terminal
b. Software

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and supplies, the student will search tape, disk, or diskette for information with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to search storage devices for information.

b. Students will be given a written test to assess their knowledge in searching storage devices for information.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: a,b,c,d,e,n,o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-10 Recognizing system or operational errors

PERFORMANCE STATEMENT

Recognize system or operational errors.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. System commands
b. System error messages
c. Appropriate action for error message

Provide Demonstration On:

a. Invalid commands
b. Common system errors
c. Wrong program

Provide Practical Application On:

a. Correcting invalid commands
b. Recognizing system errors
c. Recognizing wrong program

INSTRUCTIONAL MATERIALS

Textbooks:

a. Appropriate system manual
b. Appropriate applications manual

Equipment and Supplies:

a. Error lists
b. Program documentation

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary supplies and equipment, the student will recognize system or operational errors with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of system and operational errors.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: a,b,c,d,e,n,o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-11 Assessing/handling errors in source input

PERFORMANCE STATEMENT

Assess/handle errors in source input.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Reviewing program documentation
b. Reference to document manual
c. Reference to data entry instructions/batch tickets
d. Contacting supervisor
e. Contacting user
f. Taking appropriate action

Provide Demonstration On:

a. Reviewing all documentation
b. Following instructions
c. Taking appropriate action on source input errors

Provide Practical Application On:

a. Reviewing all documentation
b. Following instructions
c. Taking appropriate action on source input errors

INSTRUCTIONAL MATERIALS

Textbooks:

Appropriate applications manual

Equipment and Supplies:

a. Documentation
b. Data entry instructions
c. Source documents

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 3

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary supplies and equipment, the student will assess/handle errors in source input with 95% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to assess/handle errors in source input.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: a,b,c,d,e,n,o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: a,b,d,e,f

TASK OR UNIT COMPETENCY

DE-12 Modifying records and correcting data entry errors

PERFORMANCE STATEMENT

Modify records and correct data entry errors.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operating terminal
b. Loading program
c. Appropriate selection of editing function from menu
d. Following instructions
e. Correcting entry errors

Provide Demonstration On:

a. Operating terminal
b. Loading program
c. Selecting editing function
d. Correcting keying errors

Provide Practical Application On:

a. Operating terminal
b. Loading program
c. Selecting editing function
d. Correcting keying errors

INSTRUCTIONAL MATERIALS

Textbooks:

a. Appropriate applications manual
b. Appropriate system manual
c. Data entry books and diskettes

Equipment and Supplies:

a. Terminal
b. Program
c. Records

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 5

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and supplies, the student will modify existing records with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to modify existing records.

b. Students will be tested using a data entry diskette.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: a,b,c,d,e,n,o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-13 Entering data from source documents

PERFORMANCE STATEMENT

Enter data from source documents.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Machine parts
b. Numeric keys
c. Alphabetic keys
d. Functional keys and control switches
e. Starting procedure
f. Keyboard locks
g. Program format
h. Source documents

Provide Demonstration On:

a. Operating equipment
b. Organizing source documents
c. Loading program
d. Entering data

Provide Practical Application On:

a. Operating equipment
b. Organizing source documents
c. Loading program
d. Entering data

INSTRUCTIONAL MATERIALS

Textbooks:

a. Machine manual
b. Program documentation

Equipment and Supplies:

a. Keyboard input device
b. Disks or tape
c. Program
d. Source documents

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 5

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given equipment and necessary materials, the student will enter data from source documents with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to enter data.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,c,d,e,g,h,i,j,k,l,m

Math Skills: a,f,g,i,k

Problem Solving Skills: a,b,c,d,e,g,h

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-14 Transmitting data

PERFORMANCE STATEMENT

Transmit data.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operating terminal
b. Loading program
c. Control functions
d. Appropriate transmit key or code

Provide Demonstration On:

a. Operating terminal
b. Loading program
c. Control functions
d. Appropriate transmit key or code

Provide Practical Application On:

a. Operating terminal
b. Loading program
c. Control functions
d. Appropriate transmit key or code

INSTRUCTIONAL MATERIALS

Textbooks:

a. Appropriate system manual
b. Appropriate applications manual

Equipment and Supplies:

a. Terminal
b. Software

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and supplies, the student will transmit data with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to transmit data.

b. Students will be given a written test to assess their knowledge in transmitting data.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: a,b,c,d,e,n,o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-15 Preparing keyed source document for return to supervisor

PERFORMANCE STATEMENT

Prepare keyed source document for return to supervisor.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

Procedures for preparing keyed source document for return to supervisor

Provide Demonstration On:

Procedures for preparing keyed source document for return to supervisor

Provide Practical Application On:

Procedures for preparing keyed source document for return to supervisor

INSTRUCTIONAL MATERIALS

Textbooks:

Procedures manual

Equipment and Supplies:

a. Documents
b. Procedures manual
c. Necessary forms/lables

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

Performance Objective (CRM)

Given the necessary source document and information, the student will prepare, with 100% accuracy, keyed source documents for return to supervisor.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to prepare keyed source documents for return to supervisor.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,g,j

Problem Solving Skills: b

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-16 Adding new records

PERFORMANCE STATEMENT

Add new records.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operating terminal
b. Loading program
c. Appropriate selection of addition function from menu
d. Following instructions
e. Correcting entry errors

Provide Demonstration On:

a. Operating terminal
b. Loading program
c. Selecting addition function
d. Correcting keying errors

Provide Practical Application On:

a. Operating terminal
b. Loading program
c. Selecting addition function
d. Correcting keying errors

INSTRUCTIONAL MATERIALS

Textbooks:

a. Appropriate applications manual
b. Appropriate system manual
c. Data entry books and diskettes

Equipment and Supplies:

a. Terminal
b. Program
c. Records

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 5

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and supplies, the student will add new records to a program with 95% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to add new records.

b. Students will be tested using a data entry diskette.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: a,b,c,d,e,n,o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-17 Recovering data after incorrectly removing tape or diskette

PERFORMANCE STATEMENT

Recover data after incorrectly removing tape or diskette.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operation of machine
b. Recovery procedures
c. Secondary and primary storage

Provide Demonstration On:

a. Operation of machine
b. Recovery procedures
c. Secondary and primary storage

Provide Practical Application On:

a. Operation of machine
b. Recovery procedures
c. Secondary and primary storage

INSTRUCTIONAL MATERIALS

Textbooks:

Systems manual

Equipment and Supplies:

a. Computers
b. Secondary storage

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

Performance Objective (CRM)

Given the necessary equipment and supplies, the student will recover data, with 95% accuracy, after incorrectly removing tape or diskette.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to recover data after incorrectly removing tape or diskette.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,g,l,m

Problem Solving Skills: b,c,d

Communication Skills: d,e,f

TASK OR UNIT COMPETENCY

DE-18 Recovering data after power failure

PERFORMANCE STATEMENT

Recover data after power failure.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Backups
b. Power-up procedure
c. Copy functions
d. Directory/catalog
e. Maintaining source documents

Provide Demonstration On:

a. Power-up procedure
b. Back-up procedure
c. Copy function
d. Using program or system directory/catalog

Provide Practical Application On:

a. Power-up procedure
b. Back-up procedure
c. Copy function
d. Using program or system directory/catalog

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable system manual
b. Applicable manual

Equipment and Supplies:

a. Computer or terminal
b. Software
c. Program
d. Source documents

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

Performance Objective (CRM)

Given equipment and necessary materials, the student will recover data by use of backup, copy and re-creation from source documents with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a written test on recovering lost data.

b. Students will be given a performance test to assess their ability to recover lost data.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: o

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-19 Performing emergency shutdown procedures

PERFORMANCE STATEMENT

Perform emergency shutdown procedures.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Notifying all users of power down
b. Powering off peripherals
c. Powering off CPU

Provide Demonstration On:

a. Powering off peripherals
b. Powering off CPU

Provide Practical Application On:

a. Powering off peripherals
b. Powering off CPU

INSTRUCTIONAL MATERIALS

Textbooks:

Applicable system manual

Equipment and Supplies:

a. Peripherals
b. CPU

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given equipment and supplies, the student will perform emergency power down procedures with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a written test on emergency power down procedures.

b. Students will be given a performance test to assess their ability to perform an emergency power down.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: o

Problem Solving Skills: a,b,c,d,e,f,g,h,i,j,k,l

Communication Skills: b,d,e,f

204

TASK OR UNIT COMPETENCY

DE-20 Terminating operation

PERFORMANCE STATEMENT

Terminate operation.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operating terminal
b. Loading software
c. Appropriate EOJ command

Provide Demonstration On:

a. Operating terminal
b. Loading software
c. Appropriate EOJ command

Provide Practical Application On:

a. Operating terminal
b. Loading software
c. Appropriate EOJ command

INSTRUCTIONAL MATERIALS

Textbooks:

a. Appropriate system manual
b. Appropriate applications manual

Equipment and Supplies:

a. Terminal
b. Software

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and supplies, the student will terminate an operation with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to terminate an operation.

b. Students will be given a written test to assess their knowledge of terminating an operation.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-21 Deleting job files

PERFORMANCE STATEMENT

Delete job files.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operation of computer
b. Secondary storage devices
c. Criteria for deleting files
d. Deleting jobs

Provide Demonstration On:

a. Operation of computer
b. Use of secondary storage devices
c. Deleting jobs

Provide Practical Application On:

a. Operation of computer
b. Use of secondary storage devices
c. Selecting files for deletion
d. Deleting files

INSTRUCTIONAL MATERIALS

Textbooks:

a. System manual
b. Reference manuals

Equipment and Supplies:

a. Computer
b. Secondary storage devices

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment, secondary storage devices and information, the student will delete jobs with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to delete jobs.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,g,l,m

Problem Solving Skills: b,c,d

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-22 Receiving data from remote units

PERFORMANCE STATEMENT

Receive data from remote units.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operation of machine
b. Time sharing
c. Types of remote devices
d. Processing incoming information

Provide Demonstration On:

a. Operation of machine
b. Types of remote devices
c. Processing incoming information
d. Time sharing

Provide Practical Application On:

a. Operation of machine
b. Remote devices
c. Processing incoming information
d. Time sharing

INSTRUCTIONAL MATERIALS

Textbooks:

a. Mandell, Computers and Data Processing with BASIC
b. System manual

A/Vs:

Milady, "Concepts of Data Processing" (Filmstrip)

Equipment and Supplies:

Computer terminal or other device

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 2

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given the necessary equipment and incoming information, the student will receive data from remote units with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to receive data from remote units.

b. Field trip.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,g,l,m

Problem Solving Skills: c,d,f

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

DE-23 Entering data from optical character recognition device (OCR)

PERFORMANCE STATEMENT

Enter data from optical character recognition device (OCR).

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Definition of OCR
b. How OCR works
c. Matrix/retina comparison
d. OCR forms
e. Special style OCR's
f. Loading programs (if using program control)
g. Operation of terminal

Provide Demonstration On:

a. Operation of OCR
b. Operation of terminal
c. Loading program

Provide Practical Application On:

a. Operation of OCR
b. Operation of terminal
c. Loading program

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable applications manual
b. Applicable system manual
c. Clark and Lambrecht, Information Processing

Equipment and Supplies:

a. Terminal
b. OCR
c. OCR forms
d. Appropriate software

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 1

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given necessary equipment and supplies, the student will enter data from OCR device (with or without program control) with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the operation of the OCR.

b. Students will be given a performance test to assess their ability to enter data using an OCR.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,e,g,h,i,j,k,l,m

Math Skills: o

Problem Solving Skills: a,b,c,d,f,g,h,i,j,l

Communication Skills: b,d,e,f

TASK OR UNIT COMPETENCY

PR-01 Identifying specific user needs

PERFORMANCE STATEMENT

Identify specific user needs.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Questions to ask user
   1. What are data?
   2. What will data look like?
   3. How much data are needed?
   4. What will output look like?
   5. What are special problems?

b. Assembling answers

Provide Demonstration On:

a. Formulating questions
b. Putting answers into usable form

Provide Practical Application On:

a. Formulating questions
b. Putting answers into usable form

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Clark and Drum, Structured Basic
c. Dale and Orshalick, Introduction to Pascal and Structured Design
d. Horn and Gleason, Beginning Structured COBOL

Equipment and Supplies:

a. Overhead projector
b. Teacher-made transparencies

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 4

Performance Objective (CRM)

Given a written/oral problem, the student will list the specific user needs with 100% accuracy.

Suggested Testing Activities And Resources

a. Role-play a situation in which one student is the user and another student is the programmer.

b. Systems Analyst/Programmer to speak about real-life applications of this task.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-02 Designing output

PERFORMANCE STATEMENT

Design output.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Defining output
b. Relationship between input and output
c. Formatting techniques
   1. Display format
   2. Report format
   3. Headings (main and column)
d. Detail printing
e. Summary lines

Provide Demonstration On:

a. Formatting techniques
   1. Display format
   2. Report format
   3. Headings (main and column)
b. Detail printing

Provide Practical Application On:

Formatting techniques

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Clark and Drum, Structured Basic
c. Dale and Orshalick, Introduction to Pascal and Structured Design
d. Gilbert and Larky, Practical Pascal
e. Horn and Gleason, Beginning Structured COBOL
f. Mandell, Computers and Data Processing with BASIC
g. Shelly and Cashman, Computer Fundamentals for an Information Age
h. Shelly and Cashman, Introduction to COBOL
i. Shelly and Cashman, Introduction to Computers and Data Processing
j. Shelly and Cashman, Introduction to Computer Programming

Student Manuals:

a. Clark and Drum, Structured Basic
b. Shelly and Cashman, Computer Fundamentals for an Information Age
c. Shelly and Cashman, Introduction to Computer Programming
d. Shelly and Cashman, Introduction to Computers and Data Processing
e. Shelly and Cashman, Introduction to COBOL

Equipment and Supplies:

a. Overhead projector
b. Computer
c. Compiler/interpreter for language used
d. Printer

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 6

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

INSTRUCTIONAL MATERIALS

A/Vs:

a. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)
b. Shelly and Cashman, "Introduction to Computer Programming" (Transparency)
c. Teacher-made transparencies

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given output requirements, the student will generate a correct output design.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to design proper output for a given problem.

b. Students will be given a written test to assess their understanding of the relationship between input and output, the use of appropriate formatting techniques, and the correct use of headings and detail printing.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-03 Determining input required for program

PERFORMANCE STATEMENT

Determine input required for program.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Input
b. Data flow
c. Output
d. Relationship between input and output

Provide Demonstration On:

a. Determining flow of data
b. Determining input requirements from given output

Provide Practical Application On:

a. Determining flow of data
b. Determining input requirements from given output

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Clark and Drum, Structured Basic
c. Dale and Orshalick, Introduction to Pascal and Structured Design
d. Findlay and Watt, Pascal
e. Gilbert and Larky, Practical Pascal
f. Horn and Gleason, Beginning Structured COBOL
g. Mandell, Computers and Data Processing with BASIC
h. Presley, A Guide to Programming in Applesoft
i. Shelly and Cashman, Introduction to BASIC Programming
j. Shelly and Cashman, Introduction to COBOL

(Continued on next page)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Shelly and Cashman, Introduction to BASIC Programming
c. Shelly and Cashman, Introduction to COBOL
d. Shelly and Cashman, Introduction to Computer Programming
e. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Overhead projector
b. Computer
c. Compiler/interpreter for language used
d. Printer

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 1

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

INSTRUCTIONAL MATERIALS

Textbooks:
(Continued)

k. Shelly and Cashman, Introduction to Computers and Data Processing
l. Shelly and Cashman, Introduction to Programming
m. Tandy, Basic Programming
n. Tandy, Introduction to BASIC
o. Tandy, Advanced Basic

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given user's needs and equipment and supplies, the student will correctly determine the input required.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their ability to determine the input required for a program.

b. Students will be given a performance test to assess their ability to determine the input required for a program.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-04 Developing program algorithm using pseudocode/flowchart

PERFORMANCE STATEMENT

Develop program algorithm using pseudocode/flowchart.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Pseudocode
b. Data flow
c. Flowcharts
d. Program design
e. Algorithm
f. Hierarchy charts

Provide Demonstration On:

a. Determining steps to be taken to solve problems
b. Determining sequence of steps to be taken in designing program
c. Pseudocode/flowcharting techniques

Provide Practical Application On:

a. Developing pseudocode/flowchart for existing algorithm
b. Developing program design for simple problems
c. Developing algorithm using either pseudocode or flowchart for simple problems

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Clark and Drum, Structured Basic
c. Dale and Orshalick, Introduction to Pascal and Structured Design
d. Gilbert and Larky, Practical Pascal
e. Horn and Gleason, Beginning Structured COBOL
f. Mandell, Computers and Data Processing with BASIC
g. Shelly and Cashman, Introduction to COBOL
h. Shelly and Cashman, Introduction to Computers and Data Processing
i. Shelly and Cashman, Introduction to Computer Programming

Student Manuals:

a. Clark and Drum, Structured Basic
b. Shelly and Cashman, Introduction to Computer Programming
c. Shelly and Cashman, Introduction to Computers and Data Processing
d. Shelly and Cashman, Introduction to COBOL

Equipment and Supplies:

a. Flowchart templates
b. Overhead projector

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 10

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

INSTRUCTIONAL MATERIALS

A/Vs:

a. Shelly and Cashman, "Introduction to COBOL" (Transparency)
b. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computer Programming" (Transparency)

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given materials and specifications, the student will develop a correct algorithm using pseudocode or a flowchart for a programming problem.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the steps involved in developing an algorithm.

b. Students will be given a performance test to assess their ability to develop an algorithm using either pseudocode or a flow chart.

c. Use resources provided in the Instructional Materials section on the previous page.

d. Use teacher prepared problems for practice.

e. Shelly and Cashman, Introduction to Flowcharting and Computer Programming Logic.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-05 Detailing all formulas and calculations

PERFORMANCE STATEMENT

Detail all formulas and calculations.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Operators
   1. Arithmetic
   2. Relational
   3. Logical
b. Order of operations
c. Setting up mathematical equations
d. Correct syntax

Provide Demonstration On:

a. Using operators properly
b. Determining the order of calculations
c. Correct syntax for operators and calculations

Provide Practical Application On:

a. Solving problems using the order of operations
b. Developing calculations to solve word problems
c. Developing correct statements using relational and logical operators

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Clark and Drum, Structured Basic
c. Dale and Orshalick, Introduction to Pascal and Structured Design
d. Gilbert and Larky, Practical Pascal
e. Horn and Gleason, Beginning Structured COBOL
f. Mandell, Computers and Data Processing with BASIC
g. Shelly and Cashman, Introduction to COBOL
h. Shelly and Cashman, Introduction to Computers and Data Processing
i. Shelly and Cashman, Introduction to Computer Programming

A/Vs:

Teacher-made transparencies

Student Manuals:

a. Clark and Drum, Structured Basic
b. Shelly and Cashman, Introduction to COBOL
c. Shelly and Cashman, Introduction to Computer Programming
d. Shelly and Cashman, Introduction to Computers and Data Processing

ESTIMATED CLASS HOURS 3

ESTIMATED LAB HOURS 3

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given word problems, the student will detail, with 95% accuracy, all calculations and formulas necessary to solve the problem.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the kinds of operators and their uses.

b. Students will be given a performance test to assess their ability to develop calculations and formulas necessary to solve a written problem.

c. Use resources provided in the Instructional Materials section on the previous page.

d. Use teacher prepared problems for practice.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-06 Coding application programs using structured techniques

PERFORMANCE STATEMENT

Code application programs using structured techniques.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

- a. Structured program technique
  - 1. Sequence control
  - 2. IF-THEN-ELSE control
  - 3. Loop control
- b. Reserved words
  - 1. Language
  - 2. System
- c. Syntax and semantics
  - 1. Types of data
  - 2. Variable assignment
  - 3. Interactive programming
  - 4. Formatting
    - a. Program
    - b. Output
  - 5. Conditional statements
    - a. Using relational operators
    - b. Using logical operators
  - 6. Loop control
    - a. Counting loops
    - b. Conditional loops

(Continued on next page)

Provide Demonstration On:

- a. Deriving code from algorithm
- b. Constructing syntactically correct statements for
  - 1. Displaying data
  - 2. Assigning variables
  - 3. Interactive programming
  - 4. Formatting programs and output
  - 5. Setting up conditional statements
  - 6. Establishing controlled loops
  - 7. Establishing tables/arrays for
    - a. Loading
    - b. Searching
    - c. Sorting

Provide Practical Application On:

- a. Deriving code from algorithm
- b. Constructing syntactically correct statements for

(Continued on next page)

INSTRUCTIONAL MATERIALS

Textbooks:

- a. Capron and Williams, Computers and Data Processing
- b. Clark and Drum, Structured Basic
- c. Dale and Orshalick, Introduction to Pascal and Structured Design
- d. Gilbert and Larky, Practical Pascal
- e. Horn and Gleason, Beginning Structured COBOL
- f. Mandell, Computers and Data Processing with BASIC
- g. Shelly and Cashman, Introduction to COBOL
- h. Shelly and Cashman, Introduction to Computers and Data Processing
- i. Shelly and Cashman, Introduction to Computer Programming

Student Manuals:

- a. Clark and Drum, Structured Basic
- b. Shelly and Cashman, Introduction to COBOL
- c. Shelly and Cashman, Introduction to Computer Programming
- d. Shelly and Cashman, Introduction to Computers and Data Processing

ESTIMATED CLASS HOURS 20

ESTIMATED LAB HOURS 60

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

Provide Information On:
(Continued)

7. Arrays/tables
    a. Structure and loading
    b. Searching
    c. Sorting
8. Functions

Provide Practical Application On:
(Continued)

1. Displaying data
2. Assigning variables
3. Interactive programming
4. Formatting programs and output
5. Setting up conditional statements
6. Establishing controlled loops
7. Establishing tables/arrays for
    a. Loading
    b. Searching
    c. Sorting

INSTRUCTIONAL MATERIALS

A/Vs:

a. Shelly and Cashman, "Introduction to COBOL" (Transparency)
b. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computer Programming" (Transparency)
d. Teacher-made transparencies

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given program specifications, the student will correctly code application programs using structured techniques.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the techniques used in structured programming.

b. Students will be given a written test to assess their knowledge of the syntax needed to code a program.

c. Students will be given a performance test to assess their ability to code a program correctly using structured techniques.

d. Students will be given several programs to code as practice in using structured techniques.

e. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-07 Coding application programs using file handling techniques

PERFORMANCE STATEMENT

Code application programs using file handling techniques.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. File structure
   1. File
   2. Record
   3. Field
b. Sequential file
   1. Structure
   2. Access method
   3. Create
   4. Update
c. Random access file
   1. Structure
   2. Access method
   3. Create
   4. Update
d. Indexed file
   1. Structure
   2. Access method
   3. Create
   4. Update
e. File design

Provide Demonstration On:

a. Syntax and semantics for
   1. File access
   2. File creation
   3. File update
b. Logic for
   1. File access
   2. File creation
   3. File update
c. File design

Provide Practical Application On:

a. Sequential file
   1. Access
   2. Creation
   3. Update
b. Random file
   1. Access
   2. Creation
   3. Update

(Continued on next page)

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Clark and Drum, Structured Basic
c. Dale and Orshalick, Introduction to Pascal and Structured Design
d. Gilbert and Larky, Practical Pascal
e. Horn and Gleason, Beginning Structured COBOL
f. Mandell, Computers and Data Processing with BASIC
g. Shelly and Cashman, Introduction to COBOL
h. Shelly and Cashman, Introduction to Computers and Data Processing
i. Shelly and Cashman, Introduction to Computer Programming

Student Manuals:

a. Clark and Drum, Structured Basic
b. Shelly and Cashman, Introduction to COBOL
c. Shelly and Cashman, Introduction to Computer Programming
d. Shelly and Cashman, Introduction to Computers and Data Processing

ESTIMATED CLASS HOURS 30

ESTIMATED LAB HOURS 150

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

Provide Practical Application On:
(Continued)

c. Indexed file
    1. Access
    2. Creation
    3. Update

INSTRUCTIONAL MATERIALS

A/Vs:

a. Shelly and Cashman, "Introduction to COBOL" (Transparency)
b. Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)
c. Shelly and Cashman, "Introduction to Computer Programming" (Transparency)
d. Teacher-made transparencies

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given program specifications, the student will correctly code an application program using file handling techniques.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the techniques used in handling files.

b. Students will be given a performance test to assess their ability to use proper file handling techniques in coding an applications program.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-08 Developing test data to validate program

PERFORMANCE STATEMENT

Develop test data to validate program.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Typical data
b. Minimum/maximum faults
c. Field size error
d. Zero faults
e. Rounding faults
f. Case sequence faults
g. File mismatch faults
h. Duplicate records
i. Out of sequence
j. Table bounds
k. Incorrect, incomplete, or inappropriate data

Provide Demonstration On:

Creating data that will
a. Test the program's ability to handle valid and invalid data
b. Check the program for any logical errors

Provide Practical Application On:

Developing test data

INSTRUCTIONAL MATERIALS

Textbooks:

a. Sanders, Computers Today
b. Shelly and Cashman, Business Systems Analysis and Design
c. Shelly and Cashman, Computer Programming RPG II

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 6

Performance Objective (CRM)

Given a program, the student will develop test data, with 100% accuracy, to validate the program.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to develop test data.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-09 Desk checking source program for errors

PERFORMANCE STATEMENT

Desk check source program for errors.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Eliminating syntax errors
b. Stepping through the source listing
c. Correcting logical errors

Provide Demonstration On:

Obtaining a source listing and analyzing each statement for valid syntax and correct logic

Provide Practical Application On:

Desk checking a source program for syntax and logic errors

INSTRUCTIONAL MATERIALS

Textbooks:

a. Sanders, Computers Today
b. Shelly and Cashman, Business Systems Analysis and Design
c. Shelly and Cashman, Computer Programming RPG II
d. System software operations guide

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 4

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a source listing, the student will examine each source statement and eliminate all syntax and logic errors with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to desk check a source program.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-10 Analyzing computer output for accuracy following test run

PERFORMANCE STATEMENT

Analyze computer output for accuracy following test run.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Correct output alignment
b. Correct editing
c. Sub-totals and totals
d. Crossfooting
e. Comparison to produce output manually
f. Record counts

Provide Demonstration On:

a. Comparing printed or displayed output with original design
b. Checking the output to ensure correctness
c. How to crossfoot a printed report to ensure that all fields balance

Provide Practical Application On:

Analyzing output for accuracy following a test run

INSTRUCTIONAL MATERIALS

Textbooks:

a. Shelly and Cashman, Computer Fundamentals for an Information Age
b. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies:

a. Calculator
b. Computer

ESTIMATED CLASS HOURS 1

ESTIMATED LAB HOURS 5

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given equipment and supplies, the student will analyze computer output for accuracy following a test run with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to analyze computer output for accuracy.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-11 Debugging programs with or without computer aid

PERFORMANCE STATEMENT

Debug programs with or without computer aid.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Following logic of program
b. Stepping data through program
c. Using trace and debug options

Provide Demonstration On:

a. Technique of walking data through program and tracing the data through each processing step of the program logic to ensure correct logic was followed
b. How to use computer aids to display the program's memory contents

Provide Practical Application On:

a. Debugging a program without using computer aids
b. Debugging a program using computer aids

INSTRUCTIONAL MATERIALS

Textbooks:

a. Reiss, Computer Literacy
b. Sanders, Computers Today
c. Shelly and Cashman, Business Systems Analysis and Design
d. Shelly and Cashman, Introduction to Flowcharting and Computer Programming Logic
e. Systems software operation guide

Equipment and Supplies:

a. Computer
b. Calculator

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 8

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a program and necessary equipment and supplies, the student will debug the program with 100% accuracy.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to debug a program.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-12 Developing a documentation narrative

PERFORMANCE STATEMENT

Develop a documentation narrative.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Purpose of documentation narrative
b. Documentation organization
    1. Program purpose and features
    2. Program input
        a. Describe all input files and their sources
        b. Record descriptions
    3. Program processing
        a. Field editing
        b. Field updating
        c. General processing
        d. Special processing

Provide Demonstration On:

a. Proper way to describe input and output files
b. How to document program logic with narrative explanation

Provide Practical Application On:

Developing a documentation narrative on a given program

INSTRUCTIONAL MATERIALS

Textbooks:

a. Shelly and Cashman, Business Systems Analysis and Design
b. Singelmann and Longhurst, Business Programming Logic

Equipment and Supplies:

Computer

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 8

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a problem and necessary equipment and supplies, the student will develop a detailed description of all input, program processing, and output in narrative form according to the instructor's specifications.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to develop a documentation narrative.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-13 Preparing operation documentation

PERFORMANCE STATEMENT

Prepare operation documentation.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Master run book
   1. Program number and/or name
   2. System pseudocode/flowchart
   3. Program pseudocode/flowchart
   4. Program function
   5. Name of programmer
   6. Input and output descriptions, sequences, and devices used
   7. Record layouts
   8. Machine set up instructions
   9. Frequency and deadlines
   10. Re-start procedures
   11. Disposition of input and output
   12. Sample forms and reports
   13. Program listing
   14. Program history
   15. Program narrative

b. Console run book
   1. Program name
   2. Program number

(Continued on next page)

Provide Demonstration On:

a. Contents contained in the master run book
b. Contents contained in the console run book
c. Cross-referencing from console run book to master run book

Provide Practical Application On:

Creating and inserting operations and documentation for a program in a master run book and console run book

INSTRUCTIONAL MATERIALS

Textbooks:

a. Shelly and Cashman, Business Systems Analysis and Design
b. Singelmann and Longhurst, Business Programming Logic
c. Wagner, Crawford and Gruver, Computer Center Operations

Equipment and Supplies:

Flowcharting template

ESTIMATED CLASS HOURS 4

ESTIMATED LAB HOURS 6

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

Provide Information On:
(Continued)

3. Programmer name
4. System
5. Frequency
6. Deadline
7. Run instructions
    a. How to execute program
    b. Re-start instructions
    c. Messages
8. Input/output instructions
    a. File names, sizes, descriptions, and distribution
    b. Devices
    c. File descriptions
    d. Retention periods
9. Printer instructions
    a. Forms
    b. Number of parts
    c. Carriage control tape
    d. Decollating and bursting
10. Special instructions

INSTRUCTIONAL MATERIALS

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a computer program and necessary equipment and supplies, the student will develop material, according to the instructor's specifications, to be incorporated into a master run book and a console run book.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to develop adequate operation documentation.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-14 Preparing user documentation

PERFORMANCE STATEMENT

Prepare user documentation.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. For what system it is prepared
b. How to use the equipment
c. Preparing input to be entered into the system
d. Handling error messages
e. Examples of reports and other generated output
f. For whom it is prepared
g. Estimating deadlines

Provide Demonstration On:

Organizing a user manual

Provide Practical Application On:

Preparing a user's manual

INSTRUCTIONAL MATERIALS

Textbooks:

a. Beheshti and Mattson, Data Processing A User's Approach
b. Shelly and Cashman, Business Systems Analysis and Design

ESTIMATED CLASS HOURS 4

ESTIMATED LAB HOURS 6

Performance Objective (CRM)

Given a program, the student will develop documentation for a user's manual according to the instructor's specifications.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to develop a user's manual.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

PR-15 Updating documentation for program

PERFORMANCE STATEMENT

Update documentation for program.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Updating documentation narrative
b. Updating operation documentation
c. Updating user documentation

Provide Demonstration On:

Revising documentation in a documentation narrative, operation documentation, and user documentation

Provide Practical Application On:

Updating all documentation for a program that has been changed

INSTRUCTIONAL MATERIALS

Textbooks:

Shelly and Cashman, Business Systems Analysis and Design

Equipment and Supplies:

Computer

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 2

Performance Objective (CRM)

Given an updated program and necessary equipment and supplies, the student will update all affected documentation according to the instructor's specifications.

Suggested Testing Activities And Resources

a. Students will be given a performance test to assess their ability to revise documentation.

b. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,b,c,d,g,h,i,j,k

Math Skills: f,g,h,i,k,n

Problem Solving Skills: b,e,f,g,h,k,l

Communication Skills: b,d

TASK OR UNIT COMPETENCY

MA-01 Describing alternative operating systems

PERFORMANCE STATEMENT

Describe alternative operating systems.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Functions of an operating system
    1. Controlling resources
    2. Executing programs
    3. Managing data
b. Components of an operating system
    1. Supervisor programs
    2. Processing programs
    3. Data management programs
c. Comparing specific operating systems
    1. MS-DOS/CP-DOS
    2. CPM
    3. XENIX/UNIX
    4. PRODOS
    5. McIntosh files
    6. TRSDOS
d. File structure and modification

Provide Demonstration On:

a. Functions of an operating system
    1. Controlling resources
    2. Executing programs
    3. Managing data
b. Components of an operating system
    1. Supervisor programs
    2. Processing programs
    3. Data management programs
c. Specific operating systems
    1. MS-DOS/CP-DOS
    2. CPM
    3. XENIX/UNIX
    4. PRODOS
    5. McIntosh files
    6. TRSDOS
d. File structure and modification

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Sanders, Computers Today
c. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

Teacher-made transparencies

Equipment and Supplies:

a. Templates
b. Overhead projector
c. Transparencies

ESTIMATED CLASS HOURS 10

ESTIMATED LAB HOURS 10

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

Provide Practical Application On:

a. Drawing flowchart of the path a source program takes through the computer
b. Drawing diagram of the role of the operating system supervisor

INSTRUCTIONAL MATERIALS

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given instruction on the functions and components of an operating system, the student will identify, with a minimum of 90% accuracy on a written test, the alternatives of operating systems.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of the components and functions of operating systems.

b. Discussion questions in Computers Today.

c. Worksheets comparing specific operating systems.

d. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: a,c,d,e,g,i,j,k

Math Skills: f,h,m,n,o

Problem Solving Skills: a,b,e,f,h,i,j,k

Communication Skills: b,d

TASK OR UNIT COMPETENCY

MA-02 Demonstrating knowledge of data communications/teleprocessing systems

PERFORMANCE STATEMENT

Demonstrate knowledge of data communications/teleprocessing systems.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

- a. Components of a communication system
  - 1. Terminals
  - 2. Modems
  - 3. Acoustic couplers
- b. Channels of a communication system
  - 1. Telephone lines
  - 2. Coaxial cables
  - 3. Microwave transmission
  - 4. Satellite
- c. Types of transmission in communication system
  - 1. Point to point
  - 2. Multipoint
- d. Communications software
- e. Communication protocol
  - 1. Band rate
  - 2. Parity
  - 3. Data bits

(Continued on next page)

Provide Demonstration On:

- a. Terminals
- b. Modems

Provide Practical Application On:

Data communication and teleprocessing based on availability of equipment

INSTRUCTIONAL MATERIALS

Textbooks:

- a. Orilia, Introduction to Business Data Processing
- b. Shelly and Cashman, Introduction to Computers and Data Processing

A/Vs:

Shelly and Cashman, "Introduction to Computers and Data Processing" (Transparency)

Equipment and Supplies:

- a. Computer
- b. Terminal
- c. Modem
- d. Modem software
- e. Overhead projector

ESTIMATED CLASS HOURS 10

ESTIMATED LAB HOURS 10

TASK OR UNIT COMPETENCY

PERFORMANCE STATEMENT

INSTRUCTIONAL ACTIVITIES

Provide Information On:
(Continued)

4. Stop bits
5. RS-232C
6. RS-232E
7. Handshaking
8. Full duplex and half duplex
9. Answer originate

f. Parallel/serial communications
g. Criteria for choosing among data communication alternatives
h. Communication information utilities such as source and compuserve

INSTRUCTIONAL MATERIALS

ESTIMATED CLASS HOURS

ESTIMATED LAB HOURS

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given case situations, the student will choose the most appropriate data communication alternatives and justify the choice.

Suggested Testing Activities And Resources

a. If equipment is available, the student will configure and use the chosen telecommunication system.

b. Students will be given a performance test to assess their ability to communicate data through teleprocessing concepts.

c. Students will be given a written test to assess their knowledge of data communications/teleprocessing concepts.

d. AT&T.

e. Bell and Howell.

f. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,e,g,i,k

Math Skills: f

Problem Solving Skills: a,b,e,h

Communication Skills: a,b,d,e

TASK OR UNIT COMPETENCY

MA-03 Describing networking alternatives and arrangements

PERFORMANCE STATEMENT

Describe networking alternatives and arrangements.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Network designs
   1. Star
   2. Multistar
   3. Ring
   4. Multiplexers and concentrators
b. Network functions
   1. Electronic funds transfers
   2. Telecommunications
   3. Teleconferencing
c. Specific networks
   1. Omni-net (Corvus)
   2. Ethernet (3-Com)
   3. IBMLAN
d. Criteria for choosing among networking alternatives

Provide Demonstration On:

a. Network designs
   1. Star
   2. Multistar
   3. Ring
   4. Multiplexers and concentrators
b. Network functions
   1. Electronic funds transfers
   2. Telecommunications
   3. Teleconferencing
c. Specific networks
   1. Omni-net (Corvus)
   2. Ethernet (3-Com)
   3. IBMLAN
d. Criteria for choosing among networking alternatives

Provide Practical Application On:

Labeling designs on handouts

INSTRUCTIONAL MATERIALS

Textbooks:

a. Capron and Williams, Computers and Data Processing
b. Sanders, Computers Today
c. Shelly and Cashman, Introduction to Computers and Data Processing

Equipment and Supplies::

a. Overhead projector
b. Transparencies

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 10

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given case situations, the student will choose the most appropriate networking alternative and justify the choice.

Suggested Testing Activities And Resources

a. If equipment is available, the student will configure and use the chosen telecommunication system.

b. Field trip.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: c,d,g,i,k,l,m

Math Skills: f,h,m

Problem Solving Skills: b,c,d,e,f,g,h

Communication Skills: a,b,c,d

TASK OR UNIT COMPETENCY

MA-04 Installing applications software package (in-house)

PERFORMANCE STATEMENT

Install applications software package (in-house).

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Purpose of applications package
b. Back up procedures
c. Security procedures
d. Prompting messages
e. Error/problem solving
f. Use of package documentation

Provide Demonstration On:

a. Back up procedures
b. Sample run of program
c. Error handling
d. Proper documentation

Provide Practical Application On:

a. Computer start up
b. Loading and executing program
c. Correcting errors/problem solving
d. Proper documentation

INSTRUCTIONAL MATERIALS

Textbooks:

a. Robichaud, Muscat and Hall, Introduction to Data Processing
b. Shelly and Cashman, Introduction to Computers and Data Processing
c. Tandy, Introduction to Basic
d. Zabinski, Introduction to TRS-80 LEVEL II Basic and Computer Programming

A/Vs:

Tandy, "Introduction to Basic" (Transparency)

Student Manuals:

a. Allen and Klooster, Automated Accounting for the Microcomputer
b. Robichaud, Muscat and Hall, Introduction to Data Processing
c. Tandy, Introduction to Basic

Equipment and Supplies:

a. Computer
b. Application software
c. Written instructions

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 15

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given software applications, appropriate computer and materials, the student will install an applications software package according to written and demonstrated procedures.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of proper installation procedures.

b. Students will be given a performance test to assess their ability to install an applications software package.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,b,d,e,f,g,h,i,k,o

Problem Solving Skills: b,c,d,e,g,h,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

MA-05 Installing applications software package (commercial)

PERFORMANCE STATEMENT

Install applications software package (commercial).

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Purpose of applications package
b. Back up procedures
c. Security procedures
d. Prompting messages
e. Error/problem solving
f. Use of package documentation

Provide Demonstration On:

a. Back up procedures
b. Sample run of program
c. Error handling
d. Use of package documentation

Provide Practical Application On:

a. Computer start up
b. Loading and executing program
c. Correcting errors/problem solving
d. Use of package documentation

INSTRUCTIONAL MATERIALS

Textbooks:

a. Robichaud, Muscat and Hall, Introduction to Data Processing
b. Shelly and Cashman, Introduction to Computers and Data Processing
c. Tandy, Introduction to Basic
d. Zabinski, Introduction to TRS-80 Level II Basic and Computer Programming

A/Vs:

Tandy, "Introduction to Basic" (Transparency)

Student Manuals:

a. Allen and Klooster, Automated Accounting for the Microcomputer
b. Robichaud, Muscat and Hall, Introduction to Data Processing
c. Tandy, Introduction to Basic

Equipment and Supplies:

a. Computer
b. Application software
c. Written instructions

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 15

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given software applications, appropriate computer and materials, the student will install an applications software package according to written and demonstrated procedures.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of proper installation procedures.

b. Students will be given a performance test to assess their ability to install an applications software package.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,b,d,e,f,g,h,i,k,o

Problem Solving Skills: b,c,d,e,g,h,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

MA-06 Changing configuration of already-installed package

PERFORMANCE STATEMENT

Change configuration of already-installed package.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Present configuration of package
b. Desired configuration of package
c. Testing new configuration
d. Documentation procedures
e. Method of patching or altering program

Provide Demonstration On:

a. Proper methods of changing package
b. Results of change
c. Execution of newly-configured software

Provide Practical Application On:

a. Step-by-step changes
b. Execution of newly-configured software
c. Comparison of output between original and reconfigured package

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable system software guide
b. Clark and Drum, Structured Basic
c. Robichaud, Muscat and Hall, Introduction to Data Processing

A/Vs:

Tandy, "Introduction to Basic" (Transparency)

Student Manuals:

a. Clark and Drum, Structured Basic
b. Robichaud, Muscat and Hall, Introduction to Data Processing
c. Tandy, Introduction to Basic

Equipment and Supplies:

a. Computer
b. Application software
c. Patch materials
d. Documentation forms
e. Coding sheets

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 10

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a software package that is already installed, an appropriate computer and patching instructions, the student will change the configuration of the software package according to written and demonstrated procedures so the altered package produces the desired output.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of proper patching procedures.

b. Students will be given a performance test to assess their ability to change program configuration and run the altered program successfully.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,f,h,i,o

Problem Solving Skills: a,b,c,d,e,f

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

MA-07 Modifying source code or programs to alter their performance

PERFORMANCE STATEMENT

Modify source code or programs to alter their performance.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Title of source code or programs to be altered
b. Purpose of source code or programs to be altered
c. Reason for alteration
d. Expected difference in output or performance of programs
e. Documentation of changes

Provide Demonstration On:

a. Proper methods and procedures for altering source code or programs
b. Results of alterations
c. Execution of altered source code or programs

Provide Practical Application On:

a. Step-by-step alteration of code
b. Execution of altered code
c. Comparison of pre and post alteration outputs
d. Documentation of changes

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable system software guide
b. Clark and Drum, Structured Basic
c. Robichaud, Muscat and Hall, Introduction to Data Processing

A/Vs:

Tandy, "Introduction to Basic" (Transparency)

Student Manuals:

a. Robichaud, Muscat and Hall, Introduction to Data Processing
b. Tandy, Introduction to Basic

Equipment and Supplies:

a. Computer
b. Source code or programs
c. Alteration instructions
d. Documentation forms
e. Coding sheets

ESTIMATED CLASS HOURS 5

ESTIMATED LAB HOURS 5

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given applicable source code or programs, altering instructions, appropriate computer and materials, the student will modify source code or programs to obtain desired output.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of proper modification procedures and techniques.

b. Students will be given a performance test to assess their ability to make modifications and run programs successfully.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,f,h,i,o

Problem Solving Skills: b,c,d,e,g,h,j,k,l

Communication Skills: a,b,c,d,e,f

TASK OR UNIT COMPETENCY

MA-08 Backing up and restoring software and data

PERFORMANCE STATEMENT

Back up and restore software and data.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Type of software or data to back up
b. Source and destination media for back up
c. Method of back up
d. Back up schedule (daily, weekly, etc.)
e. Retention periods
f. Reasons for back up and restoration
g. Proper care and storage of back up material
h. Method of restoration of lost or damaged information

Provide Demonstration On:

a. Selection of back up media
b. Maintaining back up logs
c. Back up procedure
d. Proper care and storage of back up
e. Restoration procedures

Provide Practical Application On:

a. Selection of back up media
b. Maintenance of back up logs
c. Back up procedure
d. Restoration procedures
e. Storage of back up

INSTRUCTIONAL MATERIALS

Textbooks:

a. Applicable software or system operations guide
b. Robichaud, Muscat and Hall, Introduction to Data Processing

Equipment and Supplies:

a. Computer and peripheral devices
b. Disks or tapes as applicable for back up
c. Program or data disks or tapes to be backed up

ESTIMATED CLASS HOURS 2

ESTIMATED LAB HOURS 8

EVALUATION OF PERFORMANCE

Performance Objective (CRM)

Given a magnetic storage disk or tape, the appropriate computer and back up and restoration procedures, the student will back up and restore computer software and data files according to written and demonstrated procedures.

Suggested Testing Activities And Resources

a. Students will be given a written test to assess their knowledge of back up and restoration procedures and methods.

b. Students will be given a performance test to assess their ability to back up software and data files accurately.

c. Use resources provided in the Instructional Materials section on the previous page.

Applicable Competency-Based Education Requirements

Reading Skills: b,c,d,g,i,j,k,l,m

Math Skills: a,f,h,i,o

Problem Solving Skills: b,c,d,e,f,h,j,k,l

Communication Skills: a,b,c,d,e,f

FACILITIES

FACILITIES

Contents Listing

Facilities Introduction 3
Student Performance/Work Area 4
Learning Resource Center 10

FACILITIES INTRODUCTION

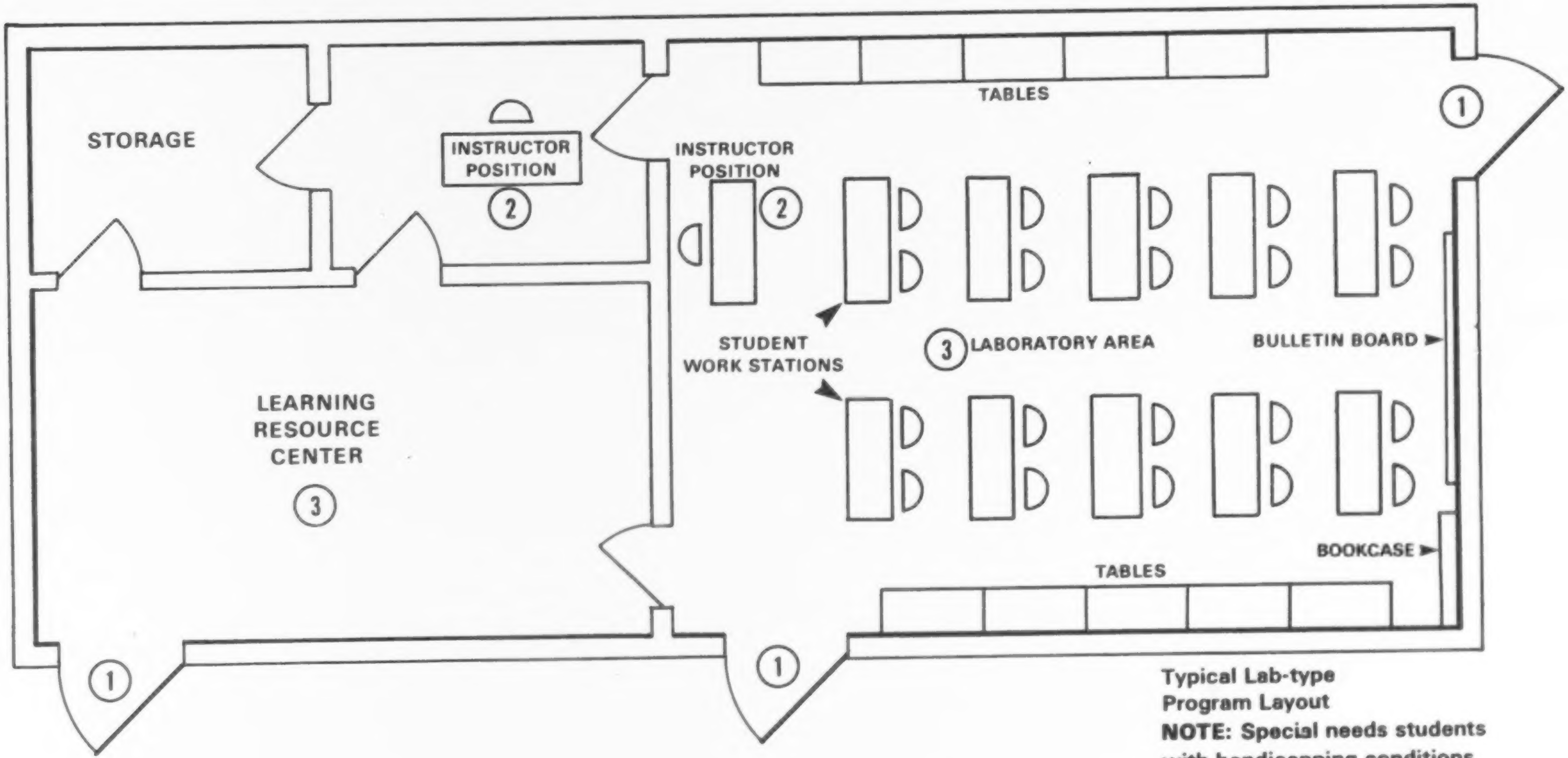
This section provides graphic and written information beneficial to setting up the student performance/work area and the learning resource center. Please note that the numbers appearing on the graphics correlate with the numbered checklist items.

FACILITIES

Good facility layouts attribute to program efficiency. When planning facility layouts, two key areas which require great consideration are the student performance/lab area and the learning resource center (LRC). This section provides, through a checklist system, a variety of ideas beneficial to setting up both types of facilities.

STUDENT PERFORMANCE OR WORK AREA CHECKLIST

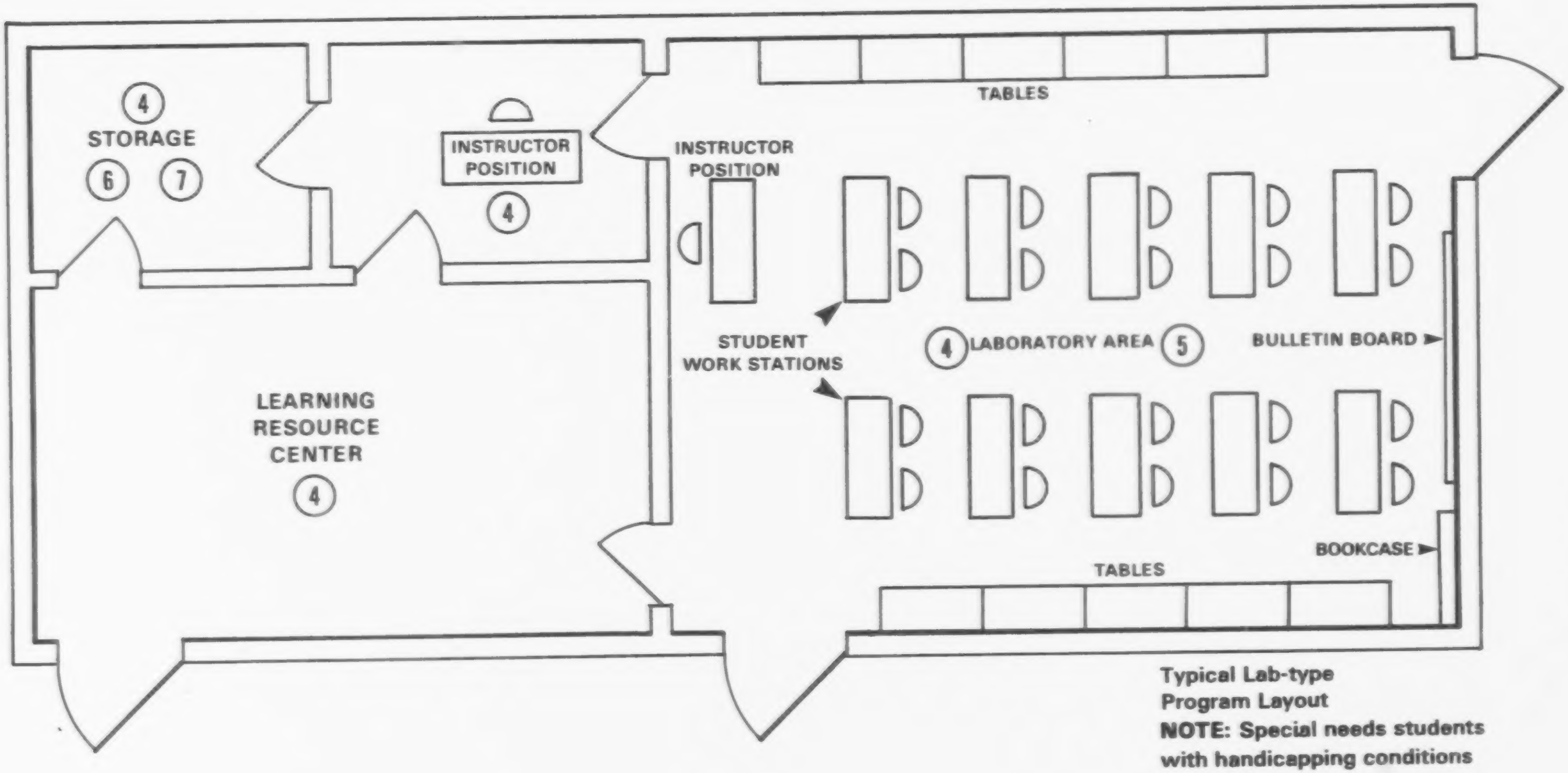
CHECKLIST	COMMENTARY
1. Safety consideration in the lab area.	Physical dangers exist in any lab area. These dangers may come in the form of physical or electrical hazards. To protect against some of the more obvious problem areas in the lab, be sure to consider the following items in your planning. .Sufficient emergency exits .Master switch to control electrical equipment .Outlets, cords, and cables secured and out of pathways
2. Can the teacher monitor all students from the instructor's position?	In lab programs, the instructor's position should be located in the center of the lab, if possible. In a situation where the instructor's position is not in the center of the lab area, glass windows or viewing capability should be an integral part of the instructor station.
3. Is it easy for the instructor to circulate among the students, and is it easy for students to get to the instructor?	Not only is eye contact needed, but direct instructor-student contact is required and important! This is a key part of student morale, motivation and learning experience.


STORAGE
INSTRUCTOR POSITION
2
INSTRUCTOR POSITION
2
TABLES
1
STUDENT WORK STATIONS
3
LABORATORY AREA
BULLETIN BOARD
LEARNING RESOURCE CENTER
3
BOOKCASE
TABLES
1
1

Typical Lab-type Program Layout

NOTE: Special needs students with handicapping conditions should be considered in aisle widths, heights of equipment and storage, etc.!

CHECKLIST	COMMENTARY
4. Does the instructor have all required information readily available?	An instructor guide, containing pertinent information for operating the program, should be maintained. The guide should include items such as job sheets, operation sheets, information sheets, oral quizzes, written tests, performance tests, answer sheets, etc. The guide should be accessible to the instructor at all times.
5. Is there sufficient equipment?	Watch for either excessive equipment of one type or too few of a needed item.
6. Is there adequate storage area for equipment and supplies?	Insuffcent storage area or lack of organization will foster inefficient and frustrating program operation.
7. Is there a good check-in, check-out and inventory system for equipment and supplies?	Some identifier or labeling of the space where equipment is stored should be used. Using this method, it is obvious when a piece of equipment is checked out or missing. For example, student tags may be numbered with two digit numbers. When the student checks out equipment, the tag should be given to the person operating the equipment checkout. The checkout person should then hang the student's tag on the hook or place it in the space from which the equipment was removed. When the equipment retrieval time arrives at the end of the day, the tags identify which students still have equipment and precisely what piece of equipment is missing.


④
STORAGE
⑥ ⑦
INSTRUCTOR POSITION
④
TABLES
INSTRUCTOR POSITION
LEARNING RESOURCE CENTER
④
STUDENT WORK STATIONS
④ LABORATORY AREA ⑤
BULLETIN BOARD
BOOKCASE
TABLES

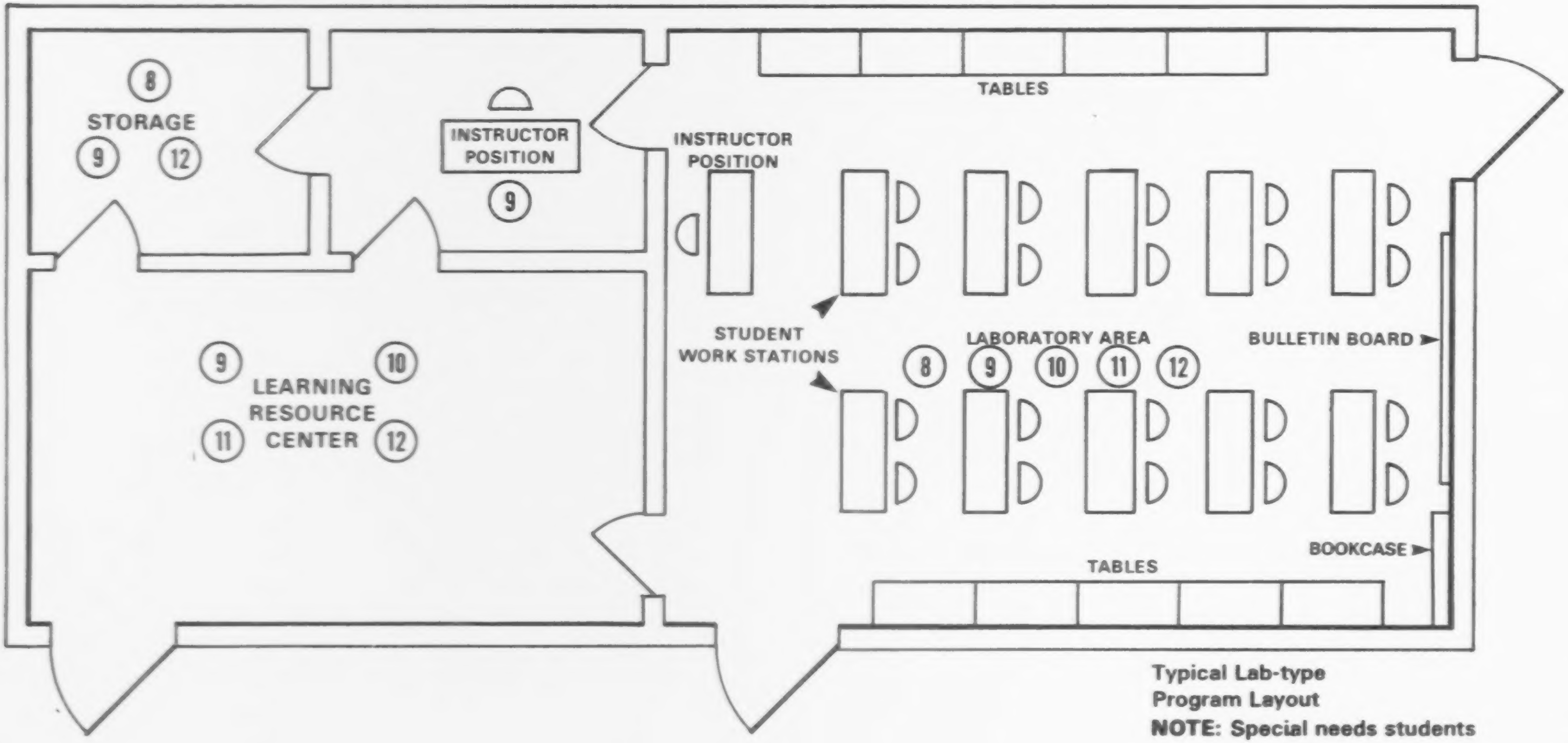
Typical Lab-type Program Layout

NOTE: Special needs students with handicapping conditions should be considered in aisle widths, heights of equipment and storage, etc.!

CHECKLIST	COMMENTARY
8. Are facilities easily cleaned?	Safe, efficient operation in any lab is dependent upon a clean and organized work area. Thoughtfulness in facility planning will aid in this area.
9. Is lighting adequate?	Insufficient lighting in a lab environment reduces efficiency and is a health hazard to eyesight.
10. Are power outlets, air outlets and the like properly located and sufficient in number?	Too few outlets often cause a situation where extension cords, hoses, etc. are laying around the lab. Proper planning of facilities relative to the type of work that will be carried on at each location alleviates the condition of too few or improperly located outlets.
11. Are student work positions comfortable?	This entails everything from good lab chairs to properly equipped work stations. Light and ventilation also play an important role in student comfort and efficiency.
12. Can students easily procure needed equipment operating manuals, etc.?	All pertinent references, technical manuals and the like which are needed routinely should be readily accessible and organized for easy retrieval and inventory. (Note: Be sure to consider the special needs students with handicapping conditions when planning storage height, etc.)"[1]

---

[1] Meade, Russell L. Installing and Operating an Individualized Instruction Program. Atlanta, GA: Georgia Department of Education, 1982.

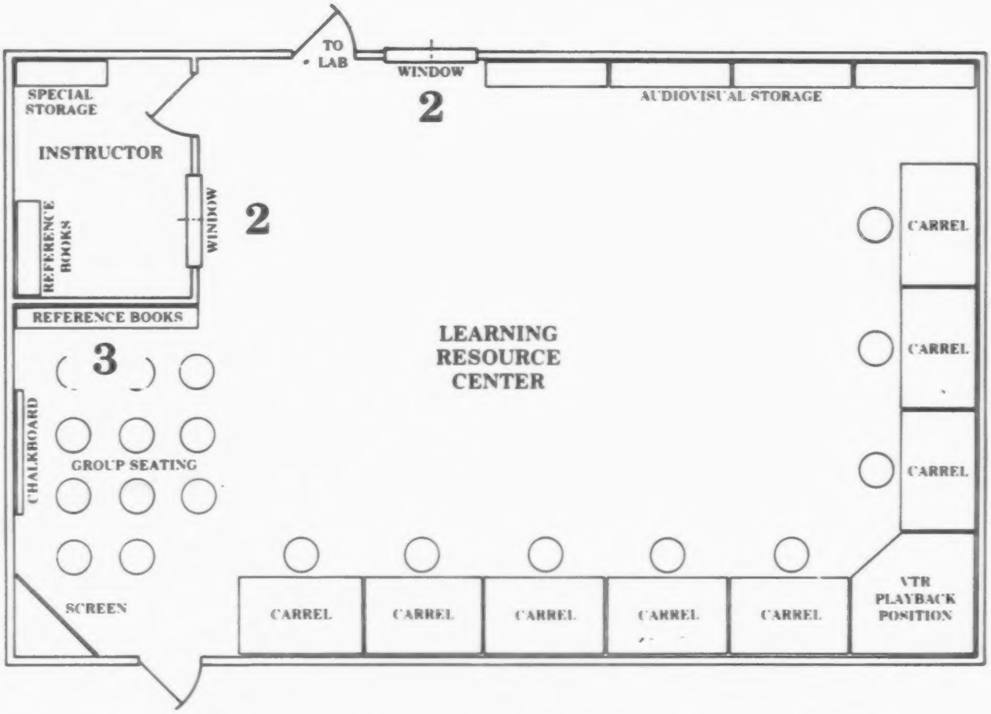

8
STORAGE
9
12
INSTRUCTOR POSITION
9
TABLES
INSTRUCTOR POSITION
STUDENT WORK STATIONS
LABORATORY AREA
8
9
10
11
12
BULLETIN BOARD
9
10
LEARNING RESOURCE CENTER
11
12
BOOKCASE
TABLES

Typical Lab-type Program Layout

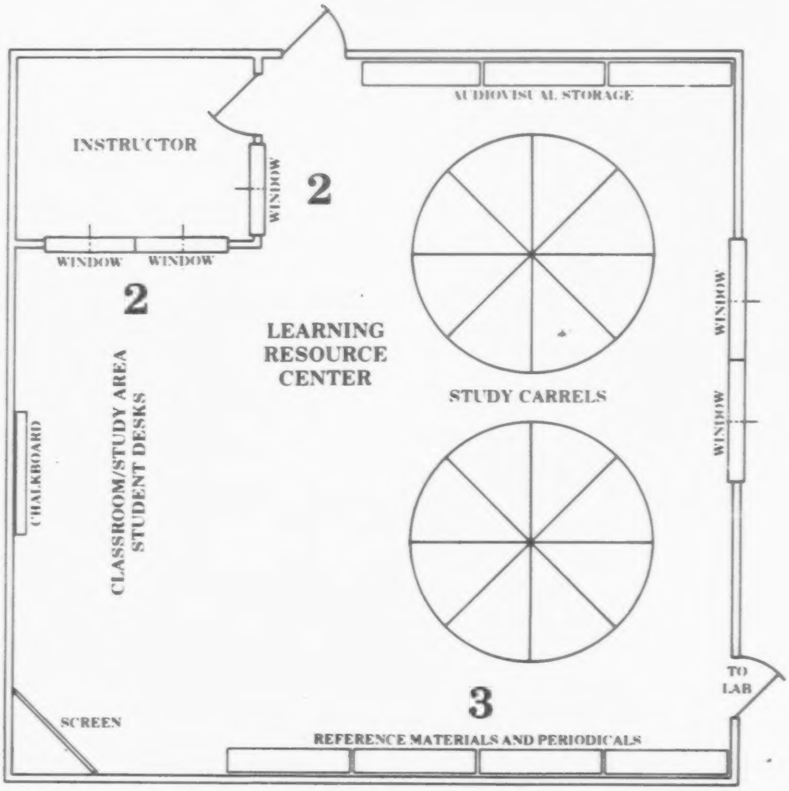
NOTE: Special needs students with handicapping conditions should be considered in aisle widths, heights of equipment and storage, etc.!

LRC AND STUDY AREA CHECKLISTS

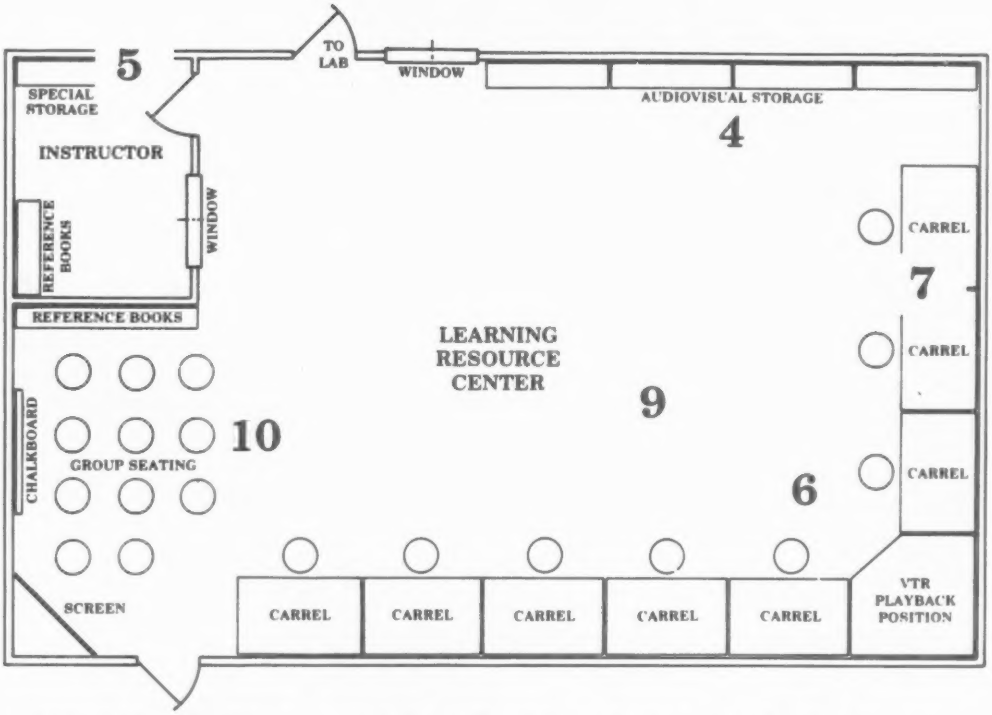
CHECKLIST	COMMENTARY
"1. Is the study area quiet and conducive to concentration?	The quiet study area should allow the student to be isolated. Student desks and chairs, which are movable, or perhaps study carrels, which allow isolation, may be used.
2. Can the instructor adequately monitor activities in the LRC?	If the LRC is in a separate room, a frequent solution to this problem is use of glass partitions or windows between rooms or training areas.
3. Is there adequate system for storage and retrieval of printed materials used in the program? (NOTE: Can the handicapped and special needs students access the materials?)	Generally, a filing system made up of file cabinets and/or storage shelves are required to organize the training materials. Establish a numbering system to aid in check-in, check-out and inventory of items which are used repeatedly. Software which is expendable, such as unit sheets, lab projects, etc., should be filed in an organized, well labeled fashion for student procurement. Again, for books, etc. which are checked in and out, devise a system whereby books and associated storage areas are labeled and inventory can be accomplished with just a glance.
4. Is there an adequate system for storage for visuals (such as slides) and audiovisuals? (NOTE: Can the handicapped and special needs students access them?)	Audiovisual storage shelves may be specially made in the form of compartmentalized storage shelves. Standard book shelves may also be used. Use slide tray boxes for storing slide trays and reinforce the boxes with tape to make them last longer. Store the slides


TO LAB
WINDOW
2
AUDIOVISUAL STORAGE
SPECIAL STORAGE
INSTRUCTOR
REFERENCE BOOKS
WINDOW
2
REFERENCE BOOKS
3
LEARNING RESOURCE CENTER
CHALKBOARD
GROUP SEATING
CARREL
CARREL
CARREL
SCREEN
CARREL
CARREL
CARREL
CARREL
CARREL
VTR PLAYBACK POSITION

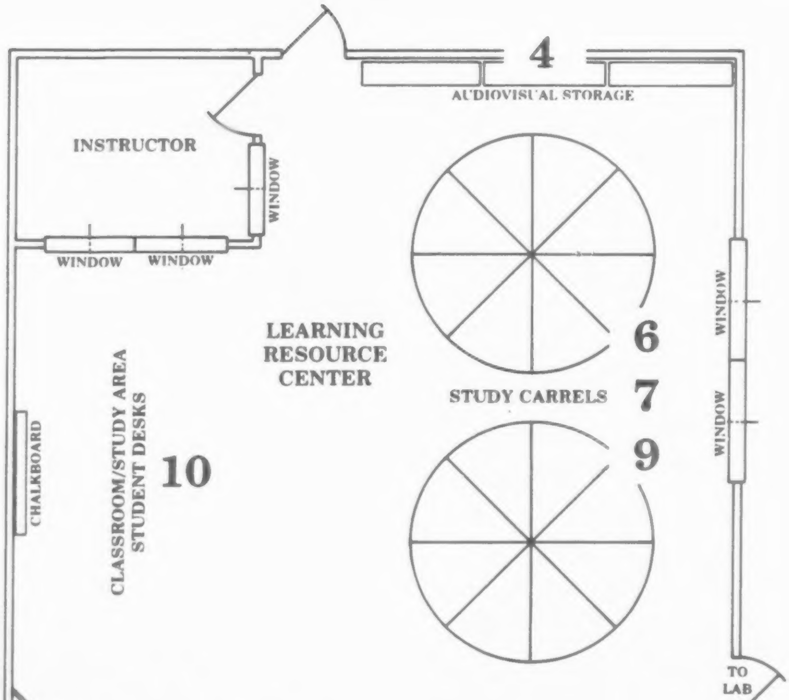
Typical LRC Facility Layouts (Note: Special needs students with handicapping conditions should be considered in aisle widths, heights of equipment and storage, etc.!


AUDIOVISUAL STORAGE
INSTRUCTOR
WINDOW
2
WINDOW
WINDOW
2
LEARNING RESOURCE CENTER
STUDY CARRELS
WINDOW
WINDOW
CHALKBOARD
CLASSROOM/STUDY AREA STUDENT DESKS
TO LAB
3
SCREEN
REFERENCE MATERIALS AND PERIODICALS

CHECKLIST	COMMENTARY
(continued) 4. Is there an adequate system for storage of visuals (such as slides) and audiovisuals? (NOTE: Can the handicapped and special needs students access them?)	and tape for each unit together in a package, or in adjacent shelves if possible. Label both the slide tray, its box and the associated tape clearly. This provides for ease of use and easier at-a-glance inventory control.
5. Has provision been made for the safe storage of master copies of slides, tapes, etc.?	The implication here is that you will not allow master copies of media to be used directly by the students, but will safely store the masters for use when needed. Where possible, only the copies from masters will be found on the student retrieval shelves for use by the students.
6. Has AV viewing equipment been set up for ease of use?	Audiovisual viewing equipment may be stationary in the LRC or may be distributed about the shop (at benches or work stations). You may also have one or more audiovisual machines set up on portable carts for mobility.
7. Does the AV viewing station have sufficient room for student study?	Each audiovisual position, whether it be a carrel, a desk, or whatever, should have adequate room for students to spread out their books, notebooks, etc.
8. Do you have spare AV equipment and parts?	It is a good idea to have at least one back-up machine.
9. Do you have a reasonable number of AV viewing positions?	The ratio of students to audiovisual stations varies from program to program. Probably


5
TO LAB
WINDOW
SPECIAL STORAGE
AUDIOVISUAL STORAGE
4
INSTRUCTOR
REFERENCE BOOKS
WINDOW
CARREL
7
REFERENCE BOOKS
LEARNING RESOURCE CENTER
CARREL
9
CHALKBOARD
10
GROUP SEATING
CARREL
6
SCREEN
CARREL
CARREL
CARREL
CARREL
CARREL
VTR PLAYBACK POSITION

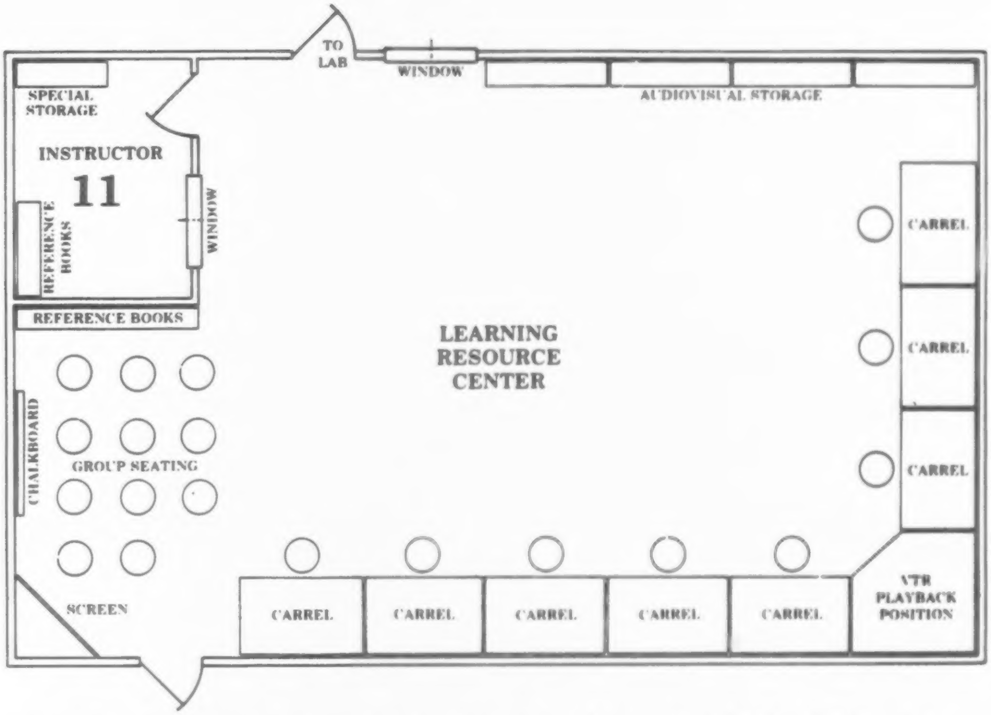
Typical LRC Facility Layouts (Note: Special needs students with handicapping conditions should be considered in aisle widths, heights of equipment and storage, etc.!


4
AUDIOVISUAL STORAGE
INSTRUCTOR
WINDOW
WINDOW
WINDOW
LEARNING RESOURCE CENTER
WINDOW
6
STUDY CARRELS
7
WINDOW
CLASSROOM/STUDY AREA STUDENT DESKS
CHALKBOARD
10
9
TO LAB
SCREEN
REFERENCE MATERIALS AND PERIODICALS

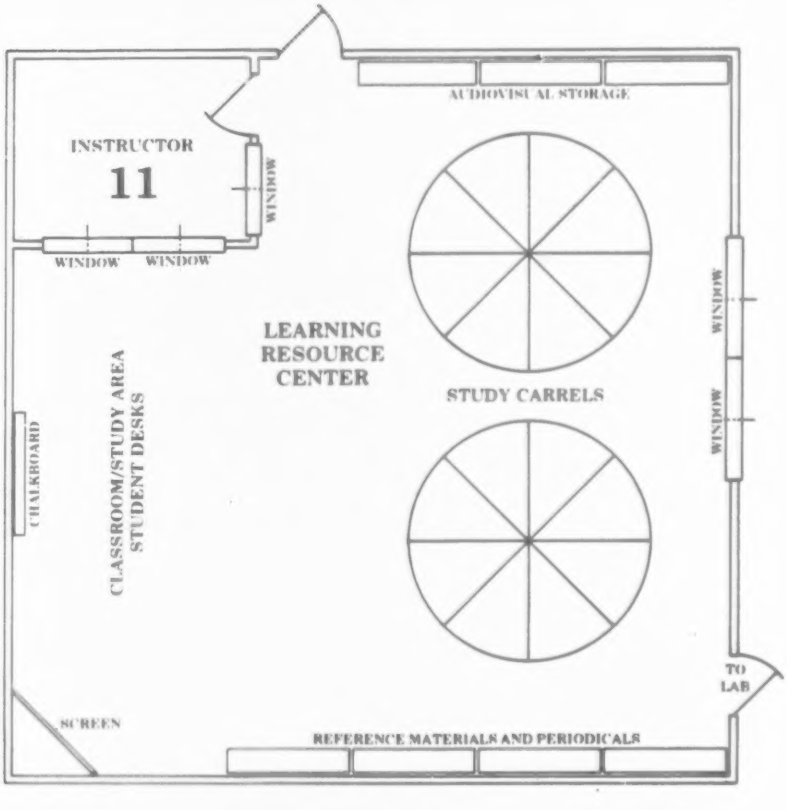
CHECKLIST	COMMENTARY
(continued) 9. Do you have a reasonable number of AV viewing positions?	the maximum number of audiovisual machines required would be one machine for every five students. In many programs, one station for every ten students will be sufficient. At any rate, most schools have found it beneficial to standardize on the type of audiovisual machine used. The rear-projection combination sound-slide machines are quite popular for this application.
10. Do you have an area for small group sessions, demonstrations, and the like?	This area may include movable chairs or desks which are easily relocated. Also, it is a good idea to have a screen, an overhead projector and a chalkboard available to the instructor.
11. Is there a place for private conferences with students?	As indicated earlier, this place would normally be the instructor's office. The office may or may not be integrated into the building space occupied by the LRC. One advantage of having the office in this area is that the LRC area is generally quieter than the shop or lab areas."[2]

---

[2] Meade, Russell L. Installing and Operating an Individualized Instruction Program. Atlanta, GA: Georgia Department of Education, 1982.


TO LAB
WINDOW
SPECIAL STORAGE
AUDIOVISUAL STORAGE
INSTRUCTOR
11
REFERENCE BOOKS
WINDOW
REFERENCE BOOKS
LEARNING RESOURCE CENTER
CARREL
CARREL
CARREL
CHALKBOARD
GROUP SEATING
SCREEN
CARREL
CARREL
CARREL
CARREL
CARREL
VTR PLAYBACK POSITION

Typical LRC Facility Layouts (Note: Special needs students with handicapping conditions should be considered in aisle widths, heights of equipment and storage, etc.!


AUDIOVISUAL STORAGE
INSTRUCTOR
11
WINDOW
WINDOW
WINDOW
LEARNING RESOURCE CENTER
STUDY CARRELS
WINDOW
WINDOW
CHALKBOARD
CLASSROOM/STUDY AREA STUDENT DESKS
TO LAB
SCREEN
REFERENCE MATERIALS AND PERIODICALS

SPECIAL NEEDS

SPECIAL NEEDS

Contents Listing

Special Needs Introduction 3
Working With Special Needs 4

SPECIAL NEEDS INTRODUCTION

This section provides a general overview of special needs students. Included in this section are directions for developing and implementing an Individualized Education Plan (IEP) and strategies for modifying facilities and equipment for special needs students.

This section also provides two actual case situations in which a physically handicapped student and a mildly mentally handicapped student are mainstreamed into a regular vocational program.

WORKING WITH SPECIAL NEEDS STUDENTS

Introduction

In recent years, the mainstreaming of special needs students into regular vocational program environments has been an area of great concern to vocational educators. The result of this concern has produced an abundance of newly developed resource materials and a variety of skillfully trained personnel specialized in working with special needs students.

To present a complete set of procedures for solving all types of special needs problems in this one entity would be impossible. However, if vocational administrators, vocational instructors, counselors and related personnel will judiciously utilize the resources presented in this section, much of the indepth information required for mainstreaming those very special and unique students can be assembled.

Topics Covered in this Section

1. Who are special needs students and how are they identified?
2. What is the Individualized Educational Plan (IEP)?
3. How is the IEP developed and who is responsible for its development?
4. How is the IEP implemented?
5. How can more information about special needs students be attained?

Who are Special Needs Students and How are They Identified?

Special needs students are those students who are designated as handicapped or disadvantaged. The Carl D. Perkins Vocational Education Act - Public Law 88-210 defines handicapped individuals as:

> "Individuals who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, orthopedically impaired, or other health impaired persons, or persons with specific learning disabilities, who by reason thereof require special education and related services, and who, because of their handicapping condition, cannot succeed in the regular vocational education program without special education assistance."

288

The same Act defines disadvantaged persons as:

> "Individuals (other than handicapped individuals) who have economic or academic disadvantages and who require special services and assistance in order to enable them to succeed in vocational education programs. Such term includes individuals who are members of economically disadvantaged families, migrants, individuals who have limited English proficiency and individuals who are dropouts from, or who are identified as potential dropouts from, secondary school."

Federal legislation requires that special needs students be given an opportunity to function in regular vocational programs. Figure 1 presents a conceptual model depicting various activities of the process in identifying special needs students so they can be mainstreamed into vocational education programs. These activities are conducted at the following three levels.

1. Community -- vocational rehabilitation, psychologists, speech pathologists, etc.
2. School -- special education personnel, counselors, administrators, etc.
3. Classroom -- vocational instructors, parents, peers, etc.

THE CONCEPT OF MAINSTREAMING

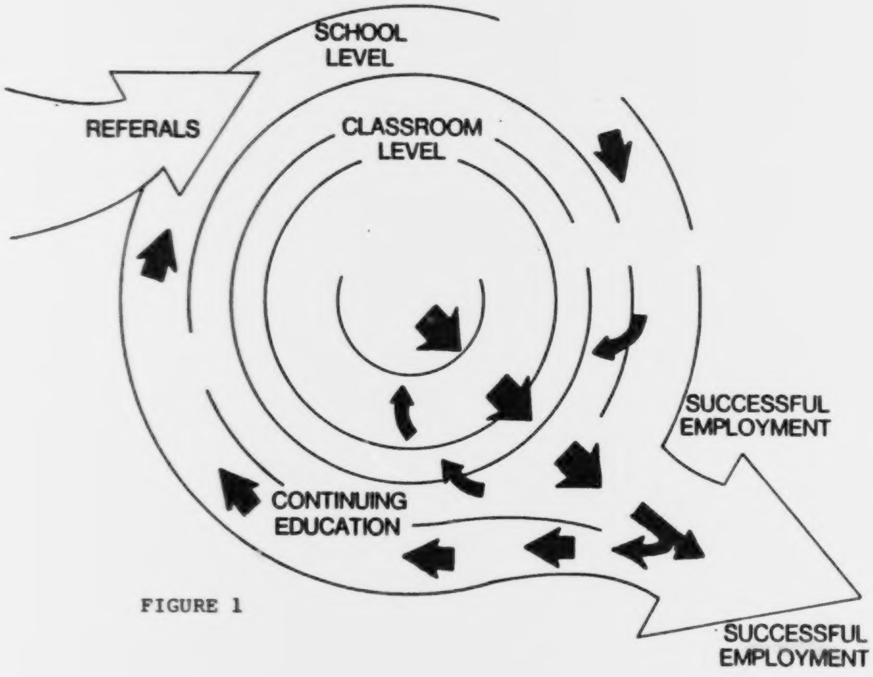


FIGURE 1

At the community level, the identification of special needs students is accomplished through a collection of data in the following areas:

1. Medical history;
2. Educational records;
3. Vocational development;
4. Communication skills;
5. Dexterity/motor skills;
6. Adaptive behavior; and
7. Teacher observations.

If any indications of particular problems/handicapping conditions are disclosed from this data, a student is referred to appropriate personnel who are trained in the area of special education. Both community and school level personnel work directly with vocational instructors to achieve the common goal of mainstreaming special needs students into regular program environments.

What is the Individualized Education Plan (IEP)?

As part of the referral and school intake process, an Individualized Educational Plan (IEP) should be intitated. The IEP is a plan for the education of an individual. Specifically, the plan describes what a student is expected to do upon course completion and how the learning experiences will be performed to assure those outcomes.

Presently, the IEP is mandated only for handicapped students. The base content for the IEP is outlined in Public Law 94-142. According to that outline, the IEP must include the following information:

1. Student's present level of functioning;
2. Student's long range instructional objectives;
3. Student's short range instructional objectives; and
4. Criteria to determine that specified objectives have been achieved.

How is the IEP Developed and Who is Responsible for its Development?

Vocational instructors have had minimal or no preparation in working with special needs students. Therefore, the IEP, a plan to aid special needs students in achieving their occupational needs, should be devised. The following steps function as a guide in the development of an IEP.

STEP 1: Review Status of Student

You are notified that a special student can profit from being enrolled in your vocational program. After notification, contact your student personnel services coordinator and ask for a detailed report of the student's assessed status. Review the report until you throughly understand the student's assessment.

STEP 2: Personnel Involved in Staffing

You must become involved in the staffing sessions that relate to vocational education. Only you, the vocational instructor, can relate a student's interests, strengths and limitations to your particular program. Others included in the staffing sessions are special education personnel, the student when necessary and support personnel such as psychologists, speech pathologists, etc. on an as-needed basis.

STEP 3: How the IEP is Determined?

Based on the interaction of all persons involved in the staffing sessions, annual goals, short term objectives, evaluation procedures, instructional procedures and special required services are determined. (See Figures 2 and 3.) Placement of the special needs student into a regular program environment is made. The IEP is signed by all staffing participants. The IEP is made available to all personnel involved with the education of the special needs student.

Evaluating the IEP

The IEP permits a special needs student to progress through a vocational program at his or her optimum rate. The progress should be frequently assessed to determine where the student is relative to the IEP objectives. If problems are detected, a staffing should be conducted to re-evaluate the IEP and to establish which educational approach is most beneficial to the student.

Evaluation of the special needs student's program is critical. Through assessment, current students may be assisted and information that will improve the potential to help future

Long Term
Individualized Education Plan (IEP)

Student: ______________________________ Date: ______________

School: ______________________________ DOB: __________ Age: ____

Present Levels of Educational Performance:

Academic

WRAT: Date ______, Reading ______, Spelling ______, Arithmetic ______

PIAT: Date ______, Math ______, Reading Recognition ______, Reading Comprehension ______
Spelling ______, General Information ______, Total Test ______.

MAT: Date ______, Total Reading ______, Total Arithmetic ______

Gaites: Date ______, ______________________________

Other: ______________ Date ______, ______________________________

Other: ______________ Date ______, ______________________________

Social Adaptation

Alpern Bell: Date ______, ______________________________

Walker: Date ______, ______________________________

Vineland: Date ______, ______________________________

Other: ______________ Date ______, ______________________________

Pre-Vocational Skills

Psychomotor or Physical Education Skills

Self-Help Skills

Annual Goals

Specific Education Services
Program and Amount of Time in Special and Regular Education

	Self-Contained	Resource	Itinerant	Reg. Ed.	Voc. Ed.	Initiation Date	Duration Date
EMR							
SLD							
BD							
Speech							
Gifted							
H/H (Other Health Impaired)							
M/H							
SMR							
TMR							
Visually Imp.							
Hearing Imp.							
Other Physical therapy							
R.V.I.							

FIGURE 2

Transportation ____________________
Physical Therapy ____________________
Occupational Therapy ____________________
Vocational Rehabilitation ____________________
Rutland Center ____________________
GRC ____________________
Other ____________________

Type P.E. Program: Mainstream ____________________ Other ____________________

Long-Term educational goals appropriate for specific needs of student:
(The checked items are the goals appropriate for ____________________ specific educational needs.)

____ To improve math calculation skills.
____ To improve math reasoning skills.
____ To improve oral expression.
____ To improve basic reading skills.
____ To improve reading comprehension skills.
____ To improve written expression skills.
____ To improve listening comprehension skills.
____ To improve visual-motor skills.
____ To improve language/communication skills.
____ To improve classroom behavior.
____ To improve ability to follow directions.
____ To improve self-confidence.
____ To improve reality orientation.
____ To improve functional math skills.
____ To improve functional reading skills.
____ To improve achievement in mainstream.
____ To reduce frequency of acting out and/or agressive behavior.
____ To improve social interaction skill (adult and/or peer relationships).
____ To increase participation in classroom and school activities.
____ To improve physical mobility.
____ To develop self-help skills.
____ To improve pre-vocational skills.
____ To improve vocational skills and provide work stations.
____ To provide on-the-job training.
____ To improve home/school communication.
____ To improve gross-motor skills.
____ To improve fine-motor skills.

Other: ____________________

Review Date: ________ (Place date and yes or no if goals are achieved according to short term objectives or review date.)

The IEP is an educational and related services plan and not a binding contract for which the school is responsible if the child does not achieve the growth projected in the goals and objectives. However, the school system will provide those services listed on the IEP.

I understand that short term instructional objectives which must be measurable intermediate steps between the present level of educational performance and the annual goals will be developed within 30 days of the projected date for initiation with permission of parents.

I have seen and understand the IEP for my child. I have been informed and understand my right to initiate a formal due process hearing if I disagree with my child's IEP. I have been informed of all the procedures applicable to such a hearing.

____________________ (Date)
____________________ (Parent's Signature)

Documentation of attempts to involve parents in IEP development.

Present: Principal ____________________ Counselor ____________________
Sp. Ed. Coord. ____________________ School Psy. ____________________
Teacher ____________________ Sp. Ed. Teacher ____________________
Parent ____________________ Other ____________________

Date: Letter sent ____________________ Phone Call ____________________
Home Visit ____________________ Other ____________________

Documentation of Attempts to Involve Parent/Guardian in Development of Short Term Instructional Objectives

Date	Comment
______	____________________
______	____________________
______	____________________
______	____________________

COUNTY SCHOOL SYSTEM

SHORT TERM INSTRUCTIONAL OBJECTIVES

____
PROGRAM

Note: Complete staffing and documentation information if developed separately from Total Service Plan. Short term objectives must be developed prior to placement.

Date of Short Term Instructional Objectives Staffing: ____________________

Committee Members Present at Short Term Instructional Objectives Staffing:

	Name	Title
1.	________________	____________________
2.	________________	____________________
3.	________________	____________________
4.	________________	____________________

Student: ____ Person to Provide Service: ____

Short Term Instructional Objectives	Criteria for Mastery	Date Reviewed	Method of Evaluation	Mastery	
				Yes	No

FIGURE 3

students with similar difficulties may be gathered. An effective evaluation system should consist of:

1. En-route evaluation (formative) to monitor the student's progress through the program;
2. Summative evaluation upon completion of the program to determine job readiness;
3. Follow-up after job placement to determine if the student is successful on the job; and
4. Follow-through activities designed to identify and further training needed (indicated by the follow-up procedure).

Implementing the IEP

After the IEP has been developed, the implementation process begins by integrating the special needs student into a regular vocational program. In most cases, a vocational program as it exists will not accommodate special needs students. Therefore, adjustments will be necessary. In discussing adjustments, a review of some general learning needs of special needs students might prove helpful in determining program modifications.

The physically handicapped usually require attention to facilities and equipment. Beyond that, their learning needs are as varied as those of the normal population. Remember, some of these individuals will actually be highly gifted in their chosen fields. Their major needs will be psychological and coping with the school environment.

The learning disabled possess average or above average intelligence, however, they have specific learning problems. In modifying the curriculum, much more emphasis should be placed on auditory and visual modes of instruction. Also, practical application of tasks is an excellent learning tool. In many incidents, repetition of instruction may be warranted.

The hearing impaired and visually handicapped can be accommodated by common sense and the use of supporting resource personnel. Larger print, braille and recordings can be used in teaching the blind. Captions on visual materials, seating arrangements, use of notes from a classmate, lower reading level textbooks, oral testing and total communications can be used for instructing the deaf.

The mentally handicapped will constitute a major population now entering vocational education. The key concept in modifying the curriculum for this population is that they require much more detail in order to learn and that they require a great deal more practice time. All curriculum modifications for these groups should be made by detailing each task or objective into its smallest parts and by providing for more and more practice.

A review of the learning needs indicates that regular vocational programs must be modified for special needs students. In making alterations, vocational instructors should never change the content of a program for special needs students. REMEMBER! ALL VOCATIONAL EDUCATION PROGRAMS ARE BASED ON REAL JOBS THAT HAVE THEIR OWN TASKS AND STANDARDS. AS FAR AS YOU ARE CONCERNED, YOU HAVE NO POWER TO CHANGE THESE. YOU ALSO CANNOT SUCCESSFULLY CREATE AN ENTIRELY NEW JOB.

Although instructional content cannot be changed, instructional facilities and strategies can be modified to help special needs students function in a regular vocational program.

Modifying the Instructional Facilities and Equipment*

Modification of facilities and equipment is a concern when working with the physically handicapped. Laws require that all school buildings must meet specifications pertaining to the accessibility of all handicapped persons. As a vocational instructor, your main concern is to insure that your classroom and laboratory allow handicapped students to be comfortable and above all to learn. The following listing presents specific ways to facilitate both comfort and learning for handicapped students.

Facilities

1. All unnecessary obstructions should be removed from the classroom.
2. There should be ample space between aisles and around equipment.
3. Storage areas for students in wheelchairs should be provided.
4. Floors should have a nonskid surface to handle wheelchairs and crutches adequately.
5. Work benches, storage cabinets, etc., should be altered in height to accommodate wheelchairs.
6. Handles should replace knobs on cabinets and doors.
7. Mobile demonstration tables should be used for mobility impaired students.
8. Sinks and water controls should be accessible. For example, batwing faucets and gooseneck spigots are more usable by orthopedically handicapped students.

---

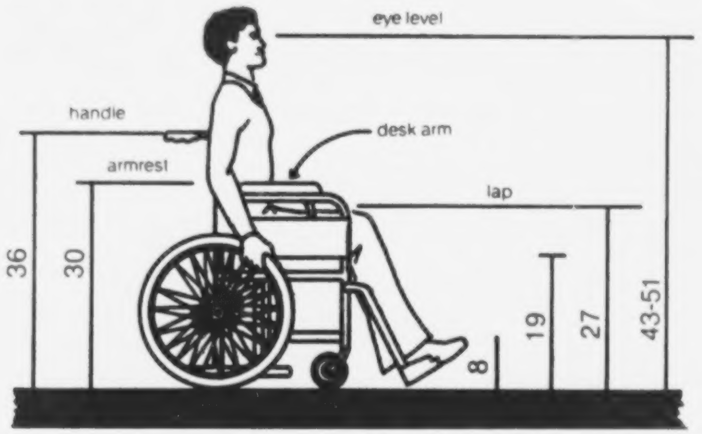
*Listings and diagrams are provided through the courtesy of the Georgia Department of Education and Douglas Gill, Working With Special Needs Students: A Handbook for Vocational Education Teachers.

Equipment

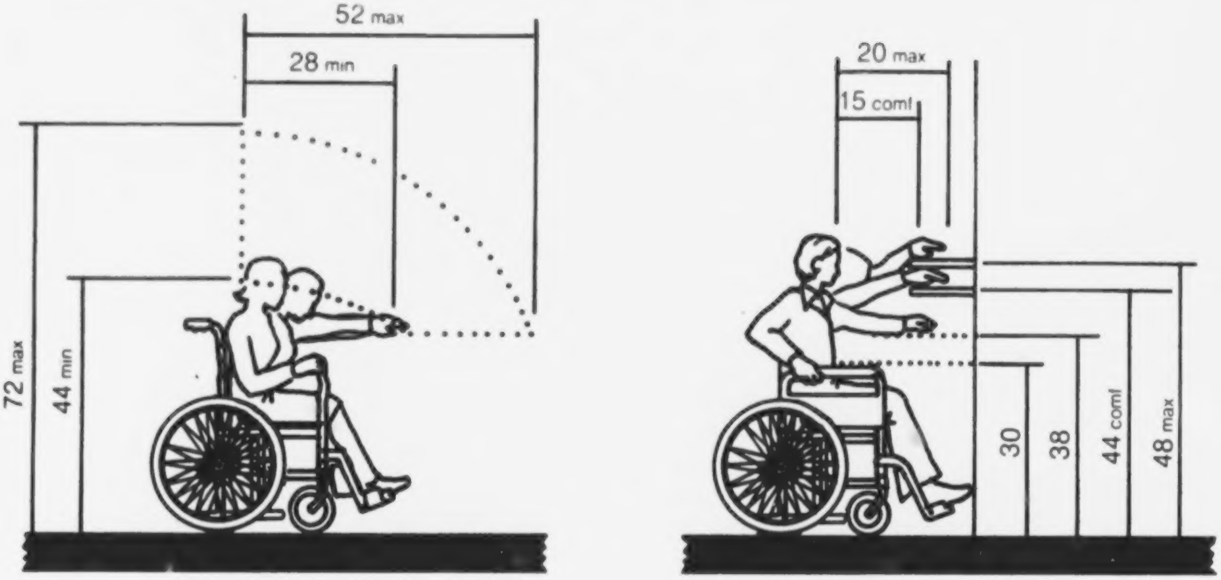
1. Guard plates, where feasible, should be utilized on power equipment.
2. Power switches should be moved for easier accessibility.
3. Semi-stationery equipment should be put on a variable height base.
4. Hand controls may be added to machines usually operated by foot controls.
5. Special lightweight hand tools with extra large handles should be used for students with limited hand strength.
6. Lighted switches should be installed to show the hearing impaired when machines are in operation.
7. Lights should be installed along with auditory alarm devices.
8. For the visually handicapped, control dials with tactile markings should be used.
9. Auditory alarms, together with visual alarms, should be installed for persons with sight problems.
10. For visually handicapped students, specifically designed devices such as those designated below, should be obtained:
    a. Braille shorthand machines;
    b. Braille micrometers and rulers;
    c. Auditory calculators;
    d. Automatic fluid measuring devices for darkroom work; and
    e. Feed indicator for lathes.

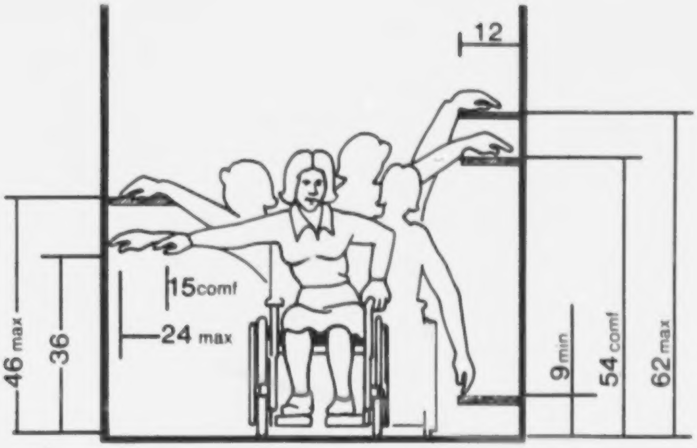
GENERAL ACCESSIBILITY STANDARDS

Dimensions of typical adult-size wheelchair (inches)

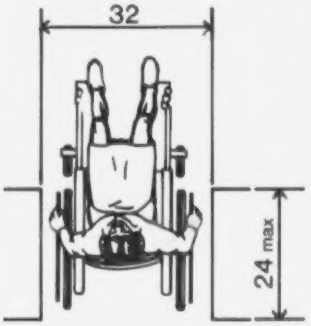

eye level
handle
desk arm
armrest
lap
36
30
8
19
27
43-51

Average reach limits from wheelchair

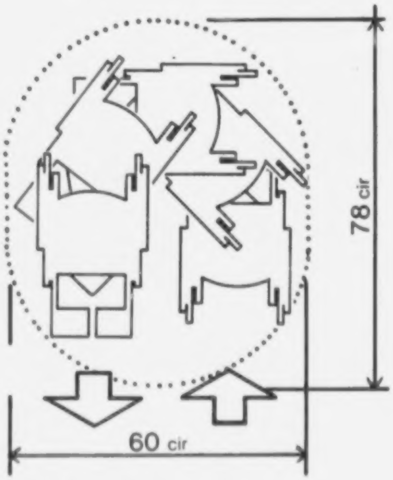

52 max
28 min
72 max
44 min
20 max
15 comf
30
38
44 comf
48 max


12
15 comf
24 max
46 max
36
9 min
54 comf
62 max

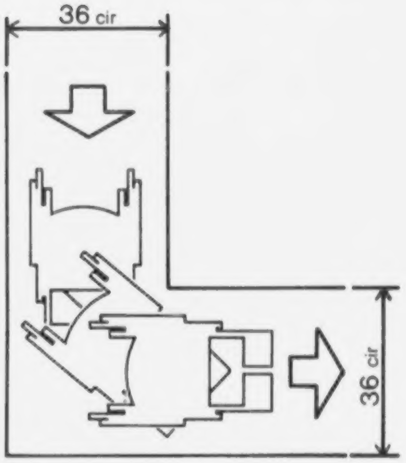
Maneuvering space and wheelchairs



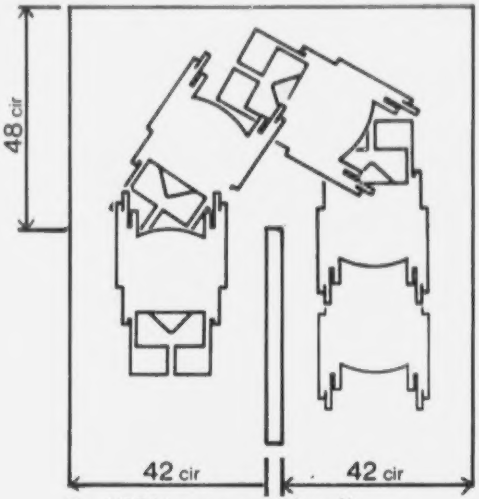
A. Minimum Clear Opening


78 cir
60 cir

B. U-Turn

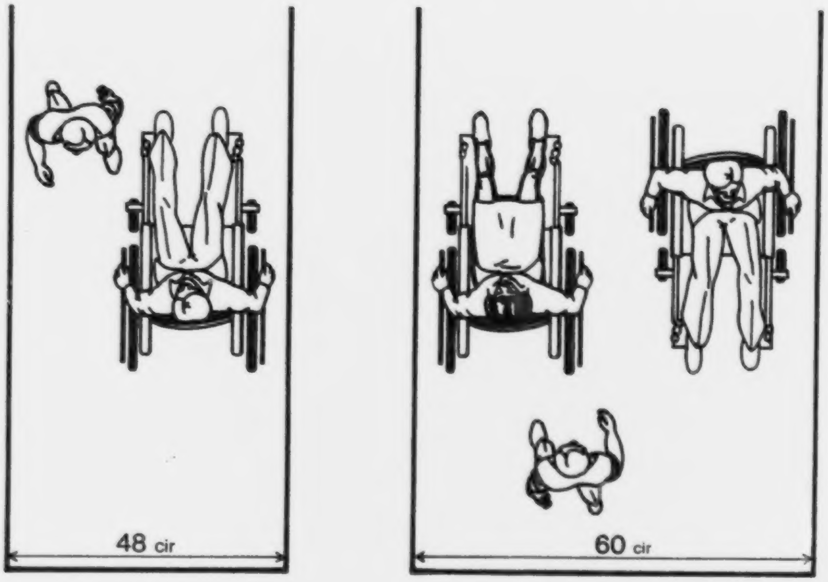

36 cir
36 cir

C. L-Turn

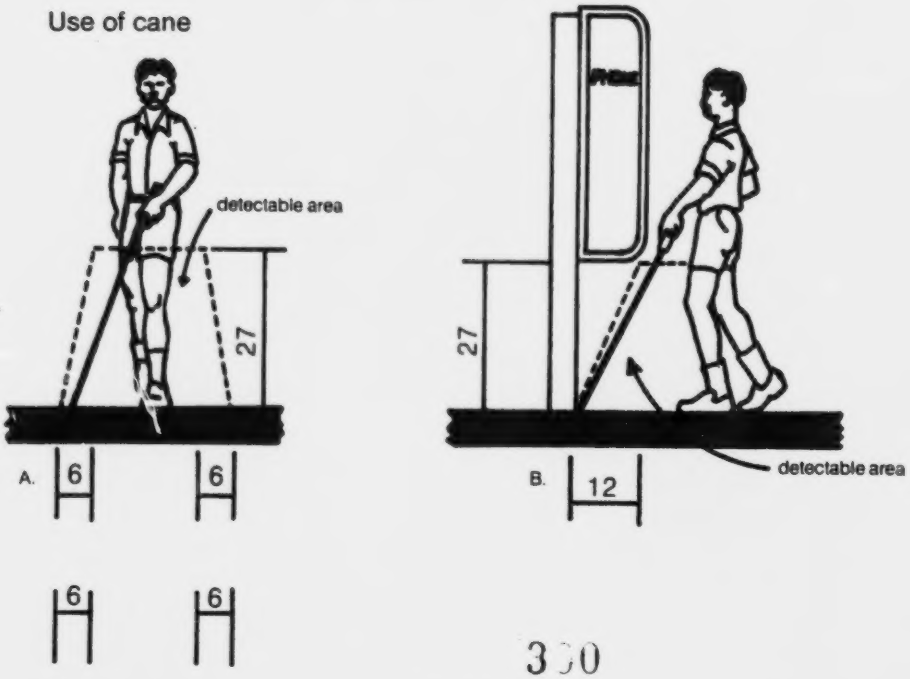

48 cir
42 cir
42 cir

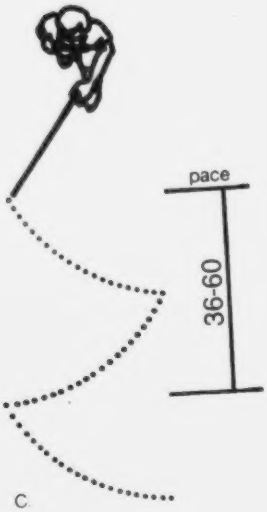
D. 180° turn around wall

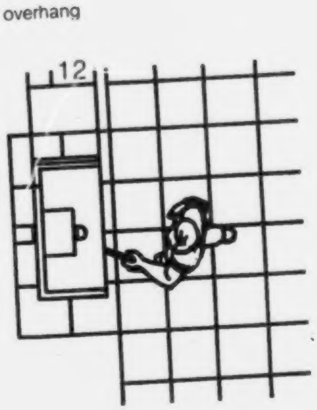
Clearance widths in passing


48 cir
60 cir

Use of cane


detectable area
27
A.
6
6
6
6
27
B.
12
detectable area


pace
36-60
C


overhang
12

Modifying Instructional Strategies

Based on the long term goals and short term objectives specified by the IEP, you, the vocational instructor, are to develop teaching strategies to insure that the objectives are met. Instructional strategies should reflect the best learning techniques for an individual special needs student. Listed below are various examples of the instructional methods which may be used in modifying existing teaching strategies to accommodate special needs students. Only a few suggestions are provided; an abundance of techniques exist.

Instructional Demonstration

Simply show the student in clear distinct steps how the job is to be done.

Peer Demonstration

This technique allows the instructor to use one of the advanced students to demonstrate a particular task in a step by step fashion. It is a flexible system. For example, you can use peer demonstration to show each task step while you explain them to the students. When working with the mentally handicapped, you will never have enough time to demonstrate a task as often as they may need to see it. In such situations, the well prepared advanced student can perform and explain the same demonstration several times.

Shadowing

Shadowing can be used in conjunction with demonstrations. By shadowing, the student is allowed to do exactly what the demonstrator does. This allows the student to learn in a see and do fashion. The student may shadow the instructor, an advanced peer or in some instances the worker on the job.

Job Site Visits

Job site visits offer the student an opportunity to see the work being done in its natural location. Students can develop a worker identity and a realistic view of how the tools, equipment and materials are brought together to produce the product.

Work Group or Team

By being a part of a work team, the student can learn the various roles in an occupation as having the opportunity to practice specific sets of skills under the tutelage of peers.

Individualized Instruction

Appropriately prepared or adjusted individualized instruction is a big help in managing a class that contains a mixture of special needs population students and "norm group" students. Individualized instruction, no matter what the source, will require much developmental input from the instructor. In most all cases, however, the results are worth the effort.

Media

Many of the special needs populations require mediated instruction (i.e., hearing impaired and visually handicapped), however, the use of appropriate media enhances learning for all students. Media can range from a line drawing in an instructional module, to a video tape, to posters and charts. It can be instructor made or commercial. All that matters is that it exactly links to the objective.

Project Method

The value in using projects with special needs population students is that they help them mentally and physically unify all the parts into a uniform whole. Because of the detail required for them to learn, they need learning activities that relate all of the parts of the whole. The development of a product through an assigned project is an ideal integrating experience.

Simulations

Simulations meet a variety of instructional needs. One of the more important simulations with special needs population students is providing the opportunity to develop proper safety concepts before actually working with the "live" equipment that could be dangerous to a careless student.

Role Playing

Role playing is a part of several other instructional strategies. On its own, it is a very good procedure for developing the attitudes and values required for a successful worker -- i.e., a sense of responsibility, the ability to take orders and follow directions, interpersonal skills and so on. It is a way to concentrate on developing good work habits and positive attitudes.

Peer Instruction

Like peer demonstrations, peer instruction multiplies the instructor's available time. This allows individual students with specific needs to have more assistance. Peer instruction has values beyond expanding time; it is an excellent approach to learning. In almost every situation, both the peer teacher and the peer student profit from the exchange. In operation, peer instruction is simply a matter of preparing and allowing one of the advanced students to teach small groups certain segments of a course.

Team Teaching

As we have already noted, some special needs populations require a combination of vocational and special education presented in harmony. A team approach is the only way to meet that need. For team teaching to be effective, clarification of student needs, as defined by the IEP, and careful planning will be required.

Peer Apprenticeships

The peer apprenticeship is an ideal way to induct the new special needs population student into the curriculum. By serving as the apprentice to an advanced student, the special needs population student can become climatized to the laboratory/shop and can begin to learn the tools, equipment and materials of the program. The shadow technique can also be added to increase hands-on learning.

Assessment and Feedback

Student learning can be improved by frequently assessing students' skills and feeding back their strengths and weaknesses. Through a process of positive feedback, the student can be moved gradually from where he or she is to the skill level required.

The ultimate goal of all this effort is not employment--rather *successful employment*. Successful employment implies that not only is the special needs student placed in a job, but that the student is able to sustain himself or herself in a working environment over an extended period of time. In some instances, students do exit the educational system completely. However, many students, in additional to obtaining a job, periodically continue in the educational system to refine existing skills or to broaden their capacities.

Case Situations

Upon becoming aware that special needs students will be mainstreamed into their programs, instructors often respond with, "Those students will never be able to pass my class." In many cases, this assumption is true. Special needs students may have handicapping conditions which prohibit them from accomplishing every task or unit competency in this curriculum guide. *Do not expect them to perform at the level of regular students; chances are they can not and will not*. You, the instructor, have to realize that special needs students have real limitations and that your responsibility is to teach them as many tasks as possible for securing some type of skill to become functional in the workforce. A person who can pump gas is employable. A person who can count money is employable. A person who can thread a sewing machine is employable. Even though these tasks are seemingly uncomplicated to us, they can mean a great deal to a special needs student.

The following two situations present how one vocational teacher incorporated two types of special needs students, the physically handicapped and the mentally handicapped, into a data processing program. After becoming aware of both students' capabilities, the instructor began to adapt tasks/unit competencies from the curriculum guide for instruction. The instructor relied on the special education personnel and other support staff in working with special needs students.

Long Term
Individualized Education Plan (IEP)

Student: Joe Jones Date: 8-30-85

School: Central High School DOB: 3-4-69 Age: 16

Present Levels of Educational Performance:

Academic

WRAT: Date 4-25-85, Reading 2.1, Spelling 2.3, Arithmetic 2.8

PIAT: Date 4-25-85, Math 3.3, Reading Recognition 2.2, Reading Comprehension 2.8
Spelling 2.5, General Information 3.8, Total Test 2.8.

MAT: Date ________, Total Reading ______, Total Arithmetic ______

Gaites: Date _______, ________________________

Other: Binet Date 10-11-84, ________________________

Other: ________________ Date _______, ________________________

Social Adaptation

Alpern Bell: Date _______, ________________________

Walker: Date 4-25-84, Shows no acting out behavior

Vineland: Date 4-25-84, 15-4

Other: ________________ Date _______, ________________________

Pre-Vocational Skills

Joe has expressed an interest in data entry. He exhibits an ability to transfer information accurately. He also exhibits good keyboarding skills. Vocational Rehabilitation evaluates data entry as a good career choice.

Psychomotor or Physical Education Skills

Joe's P.E. teacher indicated that his P.E. skills are above average. He has played on the basketball team.

Self-Help Skills

Annual Goals Upon completion of the course, the student will follow oral and/or written directions, set up and maintain computer software, and enter, store, and retrieve data.

Specific Education Services
Program and Amount of Time in Special and Regular Education

	Self-Contained	Resource	Itinerant	Reg. Ed.	Voc. Ed.	Initiation Date	Duration Date
EMR		2 hr/day			2 hr/day	8-30-85	1 year
SLD							
BD							
Speech							
Gifted							
H/H (Other Health Impaired)							
M/H							
SMR							
TMR							
Visually Imp.							
Hearing Imp.							
Other Physical therapy							
R.V.I.		1 hr/day				8-30-85	1 year

Transportation N/A

Physical Therapy N/A

Occupational Therapy

Vocational Rehabilitation

Rutland Center

GRC

Other

Type P.E. Program: Mainstream 1 hr per day Other

Long-Term educational goals appropriate for specific needs of student: (The checked items are the goals appropriate for Joe Jones specific educational needs.)

X To improve math calculation skills.
X To improve math reasoning skills.
___ To improve oral expression.
X To improve basic reading skills.
X To improve reading comprehension skills.
X To improve written expression skills.
___ To improve listening comprehension skills.
___ To improve visual-motor skills.
___ To improve language/communication skills.
___ To improve classroom behavior.
X To improve ability to follow directions.
X To improve self-confidence.
___ To improve reality orientation.
X To improve functional math skills.
X To improve functional reading skills.
X To improve achievement in mainstream.
___ To reduce frequency of acting out and/or agressive behavior.
___ To improve social interaction skill (adult and/or peer relationships).
___ To increase participation in classroom and school activities.
___ To improve physical mobility.
___ To develop self-help skills.
X To improve pre-vocational skills.
X To improve vocational skills and provide work stations.
X To provide on-the-job training.
___ To improve home/school communication.
___ To improve gross-motor skills.
___ To improve fine-motor skills.

Other:

Review Date: Spring 1986 (Place date and yes or no if goals are achieved according to short term objectives or review date.)

The IEP is an educational and related services plan and not a binding contract for which the school is responsible if the child does not achieve the growth projected in the goals and objectives. However, the school system will provide those services listed on the IEP.

I understand that short term instructional objectives which must be measurable intermediate steps between the present level of educational performance and the annual goals will be developed within 30 days of the projected date for initiation with permission of parents.

I have seen and understand the IEP for my child. I have been informed and understand my right to initiate a formal due process hearing if I disagree with my child's IEP. I have been informed of all the procedures applicable to such a hearing.

(Date)

Mrs. Richard Jones
(Parent's Signature)

Documentation of attempts to involve parents in IEP development.

Present: Principal
Sp. Ed. Coord.
Teacher
Parent Mrs. Tom Jones
Counselor
School Psy.
Sp. Ed. Teacher
Other

Date: Letter sent
Home Visit
Phone Call 8-24-85
Other

Documentation of Attempts to
Involve Parent/Guardian in
Development of Short Term
Instructional Objectives

Date	Comment
______	______________
______	______________
______	______________
______	______________

COUNTY SCHOOL SYSTEM

SHORT TERM INSTRUCTIONAL OBJECTIVES

DATA PROCESSING
PROGRAM

Note: Complete staffing and documentation information if developed separately from Total Service Plan. Short term objectives must be developed prior to placement.

Date of Short Term Instructional Objectives Staffing: 8-30-85

Committee Members Present at Short Term Instructional Objectives Staffing:

	Name	Title
1.		Data Processing Instr.
2.		R.V.I. Teacher
3.		Spec. Ed. Coordinator
4.		Parent

Student: Joe Jones

Person to Provide Service: ______________

Short Term Instructional Objectives	Criteria for Mastery	Date Reviewed	Method of Evaluation	Mastery Yes	Mastery No
1. The student will remember, organize and perform a set of oral directions.	70%	Performance Test		1.	1.
2. The student will select the equipment and supplies needed to perform a teacher-selected task.	80%	Teacher-made exam		2.	2.
3. The student will demonstrate proper set-up care and maintenance of software.	100%	Performance Test		3.	3.
4. The student will demonstrate an ability to enter data according to correct procedures.	90%	Performance Checklist		4.	4.
5. The student will demonstrate an ability to store data on software media.	90%	Performance Test		5.	5.
6. The student will demonstrate an ability to retrieve data according to correct procedures.	90%	Performance Test		6.	6.

BEST COPY AVAILABLE

Long Term
Individualized Education Plan (IEP)

Student: Christine (Green) Webb Date: 8-30-85

School: Central High School DOB: 4-25-67 Age: 18

Present Levels of Educational Performance:

Academic

WRAT: Date 4-6-84, Reading 9.8, Spelling 9.3, Arithmetic 10.3

PIAT: Date 4-6-84, Math 10.0, Reading Recognition 10.0, Reading Comprehension 10.5
Spelling 9.2, General Information 11.4, Total Test 10.1.

MAT: Date ________, Total Reading ______, Total Arithmetic ______

Gaites: Date _______, ________________________________

Other: WISC-R Date 10-15-84 V-122; P-155; IO-120

Other: ________________ Date _______, ________________________________

Social Adaptation

Alpern Bell: Date _______, ________________________________

Walker: Date _______, ________________________________

Vineland: Date 4-6-84, 11-3

Other: ________________ Date _______, ________________________________

Pre-Vocational Skills

Christine was evaluated by Vocational Rehabilitation this summer and shows skills and aptitudes in the area of data processing. She shows an interest in computers and considers it challenging to work at the computer keyboard.

Psychomotor or Physical Education Skills

Christine is paraplegic. She lost lower limbs in traffic accident at age 10. She has good use of arms and hands. She requires a wheelchair at all times.

Self-Help Skills

Christine can care for herself because of rehabilitation services.

Annual Goals Upon completion of the course, the student will develop a correct algorithm using psuedocode or flowchart for a programming problem.

Specific Education Services
Program and Amount of Time in Special and Regular Education

	Self-Contained	Resource	Itinerant	Reg. Ed.	Voc. Ed.	Initiation Date	Duration Date
EMR							
SLD							
BD							
Speech							
Gifted							
H/H (Other Health Impaired)							
M/H							
SMR							
TMR							
Visually Imp.							
Hearing Imp.							
Other Physical therapy			1 hr/week		10 hrs/wk	8-30-85	1 year
R.V.I.		5 hr/wk				8-30-85	1 year

BEST COPY AVAILABLE

Transportation special education bus
Physical Therapy once a week at vocational Rehabilitation Center
Occupational Therapy ______
Vocational Rehabilitation Once a week - counseling
Rutland Center ______
GRC ______
Other was under foster care before marriage

Type P.E. Program: Mainstream ______ Other N/A

Long-Term educational goals appropriate for specific needs of student:
(The checked items are the goals appropriate for Christine (Green) Webb specific educational needs.)

- ___ To improve math calculation skills.
- ___ To improve math reasoning skills.
- ___ To improve oral expression.
- ___ To improve basic reading skills.
- ___ To improve reading comprehension skills.
- ___ To improve written expression skills.
- ___ To improve listening comprehension skills.
- ___ To improve visual-motor skills.
- ___ To improve language/communication skills.
- ___ To improve classroom behavior.
- X To improve ability to follow directions.
- X To improve self-confidence.
- X To improve reality orientation.
- ___ To improve functional math skills.
- ___ To improve functional reading skills.
- X To improve achievement in mainstream.
- ___ To reduce frequency of acting out and/or agressive behavior.
- X To improve social interaction skill (adult and/or peer relationships).
- X To increase participation in classroom and school activities.
- X To improve physical mobility.
- X To develop self-help skills.
- X To improve pre-vocational skills.
- X To improve vocational skills and provide work stations.
- ___ To provide on-the-job training.
- ___ To improve home/school communication.
- X To improve gross-motor skills.
- X To improve fine-motor skills.

Other: ______

Review Date: Spring 1986 (Place date and yes or no if goals are achieved according to short term objectives or review date.)

The IEP is an educational and related services plan and not a binding contract for which the school is responsible if the child does not achieve the growth projected in the goals and objectives. However, the school system will provide those services listed on the IEP.

I understand that short term instructional objectives which must be measurable intermediate steps between the present level of educational performance and the annual goals will be developed within 30 days of the projected date for initiation with permission of parents.

I have seen and understand the IEP for my child. I have been informed and understand my right to initiate a formal due process hearing if I disagree with my child's IEP. I have been informed of all the procedures applicable to such a hearing.

______ (Date)
Christine G. Webb (Parent's Signature)

Documentation of attempts to involve parents in IEP development.

Present:	Principal	______	Counselor	______
	Sp. Ed. Coord.	______	School Psy.	______
	Teacher	______	Sp. Ed. Teacher	______
	Parent	______	Other	______
Date:	Letter sent	______	Phone Call	______
	Home Visit	______	Other	______

Documentation of Attempts to Involve Parent/Guardian in Development of Short Term Instructional Objectives

Date	Comment

COUNTY SCHOOL SYSTEM

SHORT TERM INSTRUCTIONAL OBJECTIVES

DATA PROCESSING
PROGRAM

Note: Complete staffing and documentation information if developed separately from Total Service Plan. Short term objectives must be developed prior to placement.

Date of Short Term Instructional Objectives Staffing: 8-30-85

Committee Members Present at Short Term Instructional Objectives Staffing:

	Name	Title
1.		Data Processing Instr.
2.		R.V.I. Teacher
3.		Spec. Ed. Coordinator
4.	Christine Webb	Student

Student: Christine (Green) Webb

Person to Provide Service:

Short Term Instructional Objectives	Criteria for Mastery	Date Reviewed	Method of Evaluation	Mastery Yes	Mastery No
1. The student will select the equipment and supplies needed to perform a teacher-selected task.	80%		Teacher-made exam	1.	1.
2. The student will demonstrate an ability to determine the steps involved in solving the problem.	90%		Teacher-made exam	2.	2.
3. The student will demonstrate an ability to determine the sequence of steps necessary in designing a program.	90%		Teacher-made exam	3.	3.
4. The student will demonstrate an ability to use pseudocode/flowcharting techniques.	90%		Teacher-made exam	4.	4.

BEST COPY AVAILABLE

Support Personnel/Systems

You, the vocational instructor, do not always have sufficient skills for dealing with the multitude of problems which may arise when working with special needs students. Included in this section are suggested resource personnel who can assist you when those problems occur.

County Health Department

Many of your special needs students will need some medical and dental assistance. The county health facility is in excellent referral source for these problems.

Special Education

Through local boards of education, there are a variety of special education personnel available locally, regionally and from the State Department of Education. The vocational education administrator can obtain assistance from these specialists through the local superintendent's office.

Project SERVE

Project SERVE is a statewide effort to acquire materials and to cultivate expertise in providing vocational education to the disadvantaged. Project SERVE can be contacted by the are vocational-technical director or the vocational supervisor.

Vocational Rehabilitation

Vocational rehabilitation is a highly developed organization whose major focus is all dimensions (such as: training, diagnosing, job placement and counseling) of the handicapped population. Within that network is a vast pool of expertise. You can contact it through the area vocational rehabilitation counselor who calls on your school or through a designated school official such as the coordinator of student personnel services or Career Development Center personnel.

Related Vocational Instruction

The RVI program is designed to provide special education and support instruction to secondary vocational education programs. Although an RVI instructor is not available to every school, they are a valuable all around resource in the schools where they are located.

Coordinated Vocational and Academic Education

CVAE is a prevocational program designated to assist disadvantaged students in developing the basic skills required to succeed in vocational education and in entering an appropriate program. The CVAE coordinator and the interlocking team of teachers are an excellent resource to the vocational instructor who is working with the disadvantaged in regular vocational education programs.

All the resource personnel previously listed are part of a team. The best results can be achieved by utilizing many possible resources. Do not hesitate to call the appropriate experts for additional assistance. Most of the service groups are funded to support your special needs students. If you do not use them, they fail in their mission and you also fail in yours.

INSTRUCTIONAL
MANAGEMENT
INFORMATION

CERTIFICATE OF COMPETENCY

This is to Certify that

of

has successfully mastered the competencies required to perform the job of

Programmer, Business

INSTRUCTIONAL MANAGEMENT INFORMATION

Contents Listing

Instructional Management Information Introduction 3
Competency Checklist and Certificate of Competency Introduction 4
Instructions 5
Competency Checklist 6
Certificate of Competency 9
Criterion-Referenced Testing Introduction 17
Criterion-Referenced Testing 18
Curriculum Guide Section References Introduction 24
Curriculum Guide Section References 25
Georgia Performance Standards for Graduation Introduction 37
Georgia Performance Standards for Graduation 38
Daily Lesson Plan Introduction 48
Daily Lesson Plan 49

INSTRUCTIONAL MANAGEMENT INFORMATION INTRODUCTION

This section provides information and tools which should be helpful in making your program operate more efficiently.

COMPETENCY CHECKLIST AND CERTIFICATE OF COMPETENCY INTRODUCTION

On the following pages, records management tools, the Competency Checklist and the Certificate of Competency, are provided.

These instruments are designed to document individual student competency and should be filled out by the instructor upon student mastery of a competency. Not only do these record management tools serve as progress indicators to instructors, they can also be helpful to potential employers.

INSTRUCTIONS

Instructions

Competency Checklist
1) Enter the student's name.
2) Enter the date and instructor's initials as each unit of instruction is completed.

The Competency Checklist automatically indicates when all the requirements for each DOT exit point or job title have been completed by the student. At each point on the certificate where an asterisk appears, the student is eligible to receive a Certificate of Competency.

Certificate of Competency

A Certificate of Competency is to be issued for each job title for which a student is qualified.
1) Enter the student's name.
2) Enter the school's name.
3) Sign and date the form.

A Certificate of Competency may be issued at the time a student qualifies for it, or all certificates for which a student qualifies may be issued to the student when he/she completes or leaves the program.

COMPETENCY CHECKLIST

EXIT POINTS

PROGRAM: DATA PROCESSING

STUDENT NAME: ________________

TASK NO.	UNIT COMPETENCIES	DATE	IN'T	DOT NO. JOB TITLE	203.582-054 Terminal Operator (Data Entry)	213.362-010 Computer Operator	020.162-014 Programmer, Business
PE-01	Completing the job application process				X	X	X
PE-02	Demonstrating desirable work traits				X	X	X
PE-03	Demonstrating an understanding of the importance of the application-related security requirements				X	X	X
CC-01	Demonstrating a knowledge of the information processing cycle				X	X	X
CC-02	Analyzing the impact of computers on our society				X	X	X
CC-03	Identifying computer languages by name and major purpose				X	X	X
CC-04	Describing the classifying factors of types of computers				X	X	X
CC-05	Using computers in industry				X	X	X
CC-06	Examining careers in information systems				X	X	X
CC-07	Operating keyboard by touch control				X	X	X
CC-08	Describing the role of computer system hardware components				X	X	X
CC-09	Demonstrating a knowledge of copyright laws				X	X	X
CC-10	Describing the organization of auxiliary storage				X	X	X
CC-11	Recognizing the organization and use of internal data structures				X	X	X
CC-12	Recognizing relationships among types of computer software --- operating systems, programming languages and applications				X	X	X
CC-13	Installing, maintaining and backing up media				X	X	X
CC-14	Using numbering systems				X	X	X
CC-15	Planning, coding and testing a simple program using structured techniques				X	X	X
CC-16	Describing the integral relationship among word processing and data processing in management information systems				X	X	X
CC-17	Demonstrating an understanding of data communications (teleprocessing) concepts				X	X	X
CC-18	Describing and illustrating the uses of a computer spreadsheet				X	X	X
CC-19	Using a data base program				X	X	X
CC-20	Using graphics software for charts, graphs and other illustrations				X	X	X
CC-21	Using electronic mail				X	X	X
CC-22	Previewing word processing techniques				X	X	X
CC-23	Designing a document using word processing software				X	X	X
CC-24	Entering and editing text using word processing software				X	X	X
CC-25	Finishing a document using word processing software				X	X	X
CC-26	Printing a document using word processing software				X	X	X
DE-01	Setting up work station				X	X	
DE-02	Previewing data control functions				X	X	
DE-03	Scheduling and monitoring jobs				X	X	X
DE-04	Checking out and returning tapes or disks from the tape/disk library					X	
DE-05	Preparing backup files					X	
DE-06	Monitoring disk usage					X	
DE-07	Copying data					X	
DE-08	Previewing entering/verifying process				X		
DE-09	Searching tape, disk or diskette for information				X	X	
DE-10	Recognizing system or operational errors				X		

COMPETENCY CHECKLIST

EXIT POINTS

PROGRAM: DATA PROCESSING

STUDENT NAME: _______________

TASK NO.	UNIT COMPETENCIES	DATE	IN'T	DOT NO. JOB TITLE	203.582-054 Terminal Operator (Data Entry)	213.362-010 Computer Operator	020.162-014 Programmer, Business
DE-11	Assessing/handling errors in source input				X		
DE-12	Modifying records and correcting data entry errors				X		
DE-13	Entering data from source documents (with or without program control)				X		
DE-14	Transmitting data				X		
DE-15	Preparing keyed source document for return to supervisor				X		
DE-16	Adding new records				X		
DE-17	Recovering data after incorrectly removing tape or diskette				X		
DE-18	Recovering data after power failure				X	X	
DE-19	Performing emergency shutdown procedures					X	
DE-20	Terminating operation				X	X	
DE-21	Deleting job files					X	
DE-22	Receiving data from remote units					X	
DE-23	Entering data from optical character recognition device (OCR) (with or without program control)				X*	X*	
PR-01	Identifying specific user needs						X
PR-02	Designing output						X
PR-03	Determining input required for program						X
PR-04	Developing algorithm using pseudocode/flowchart						X
PR-05	Detailing all formulas and calculations						X
PR-06	Coding application programs using structured techniques						X
PR-07	Coding application programs using file handling techniques						X
PR-08	Developing test data to validate program						X
PR-09	Desk checking source program for errors						X
PR-10	Analyzing computer output for accuracy following test run						X
PR-11	Debugging programs with or without computer aid						X
PR-12	Developing a documentation narrative						X
PR-13	Preparing operation documentation						X
PR-14	Preparing user documentation						X
PR-15	Updating documentation for program						X*

This is to certify that the above named student has demonstrated proficiency in the performance of the competencies and/or tasks indicated above. These competencies and/or tasks have been determined to be the skills and knowledge that are necessary for entry level employment into the job classifications indicated.

Date_____________ Instructor____________________
School____________________
Instructor____________________
Instructor____________________
Instructor____________________
Instructor____________________

COMPETENCY CHECKLIST

PROGRAM: DATA PROCESSING

STUDENT NAME: ____________

TASK NO.	UNIT COMPETENCIES	DATE	IN'T
MA-01	Describing alternative operating systems		
MA-02	Demonstrating knowledge of data communications/ teleprocessing systems		
MA-03	Describing networking alternatives and arrangements		
MA-04	Installing applications software package (in-house)		
MA-05	Installing applications software package (commercial)		
MA-06	Changing configuration of already-installed package		
MA-07	Modifying source code or programs to alter their performance		
MA-08	Backing up and restoring software and data		

This is to certify that the above named student has demonstrated proficiency in the performance of the competencies and/ or tasks indicated above.

Date___________ Instructor_____________
School_________________
Instructor_____________
Instructor_____________
Instructor_____________
Instructor_____________

CERTIFICATE OF COMPETENCY

This is to Certify that

Lee Davis

SAMPLE

of

Cherokee High School

has successfully mastered the competencies required to perform the job of

Terminal Operator (Data Entry)

Richard Dreschel

June 4, 1986

The student named on this certificate has demonstrated mastery of the following unit level competencies required to perform the job of Terminal Operator (Data Entry).

TERMINAL OPERATOR (DATA ENTRY)
(D.O.T. Code 203.582-054)

Employability Skills Fundamentals
Completing the job application process
Demonstrating desirable work traits
Demonstrating an understanding of the importance of the application-related security requirements

Data Processing History and Overview
Demonstrating a knowledge of the information processing cycle
Analyzing the impact of computers on our society
Identifying computer languages by name and major purpose
Describing the classifying factors of types of computers
Using computers in industry
Examining careers in information systems

Keyboarding
Operating keyboard by touch control

Data Processing Fundamental Concepts
Describing the role of computer system hardware components
Demonstrating a knowledge of copyright laws
Recognizing the organization and use of internal data structures
Recognizing relationships among types of computer software --- operating systems, programming languages and applications
Installing, maintaining and backing up media
Using numbering systems
Planning, coding and testing a simple program using structured techniques
Describing the integral relationship among word processing and data processing in management information systems
Demonstrating an understanding of data communications (teleprocessing) concepts
Describing and illustrating the uses of a computer spreadsheet
Using a data base program
Using graphics software for charts, graphs and other illustrations
Using electronic mail

Word Processing Fundamental Concepts
Previewing word processing techniques
Designing a document using word processing software
Entering and editing text using word processing software
Finishing a document using word processing software
Printing a document using word processing software

Data Control Functions
Setting up work station
Previewing data control functions
Scheduling and monitoring jobs
Previewing entering/verifying process
Searching tape, disk or diskette for information
Recognizing system or operational errors
Assessing/handling errors in source input
Modifying records and correcting data entry errors
Entering data from source documents (with or without program control)
Transmitting data
Preparing keyed source document for return to supervisor
Adding new records
Recovering data after incorrectly removing tape or diskette
Recovering data after power failure
Terminating operation
Entering data from optical character recognition device (OCR) (with or without program control)

BEST COPY AVAILABLE

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of

Terminal Operator (Data Entry)

____

____

The student named on this certificate has demonstrated mastery of the following unit level competencies required to perform the job of Terminal Operator (Data Entry).

TERMINAL OPERATOR (DATA ENTRY)
(D.O.T. Code 203.582-054)

Employability Skills Fundamentals
Completing the job application process
Demonstrating desirable work traits
Demonstrating an understanding of the importance of the application-related security requirements

Data Processing History and Overview
Demonstrating a knowledge of the information processing cycle
Analyzing the impact of computers on our society
Identifying computer languages by name and major purpose
Describing the classifying factors of types of computers
Using computers in industry
Examining careers in information systems

Keyboarding
Operating keyboard by touch control

Data Processing Fundamental Concepts
Describing the role of computer system hardware components
Demonstrating a knowledge of copyright laws
Recognizing the organization and use of internal data structures
Recognizing relationships among types of computer software --- operating systems, programming languages and applications
Installing, maintaining and backing up media
Using numbering systems
Planning, coding and testing a simple program using structured techniques
Describing the integral relationship among word processing and data processing in management information systems
Demonstrating an understanding of data communications (teleprocessing) concepts
Describing and illustrating the uses of a computer spreadsheet
Using a data base program
Using graphics software for charts, graphs and other illustrations
Using electronic mail

Word Processing Fundamental Concepts
Previewing word processing techniques
Designing a document using word processing software
Entering and editing text using word processing software
Finishing a document using word processing software
Printing a document using word processing software

Data Control Functions
Setting up work station
Previewing data control functions
Scheduling and monitoring jobs
Previewing entering/verifying process
Searching tape, disk or diskette for information
Recognizing system or operational errors
Assessing/handling errors in source input
Modifying records and correcting data entry errors
Entering data from source documents (with or without program control)
Transmitting data
Preparing keyed source document for return to supervisor
Adding new records
Recovering data after incorrectly removing tape or diskette
Recovering data after power failure
Terminating operation
Entering data from optical character recognition device (OCR) (with or without program control)

CERTIFICATE OF COMPETENCY

This is to Certify that

of

has successfully mastered the competencies required to perform the job of

Computer Operator

The student named on this certificate has demonstrated mastery of the following unit level competencies required to perform the job of Computer Operator.

COMPUTER OPERATOR
(D.O.T. Code 213.362-010)

Employabilty Skills Fundamentals
Completing the job application process
Demonstrating desirable work traits
Demonstrating an understanding of the importance of the application-related security requirements

Data Processing History and Overview
Demonstrating a knowledge of the information processing cycle
Analyzing the impact of computers on our society
Identify computer languages by name and major purpose
Describing the classifying factors of types of computers
Using computers in industry
Examining careers in information systems

Keyboarding
Operating keyboard by touch control

Data Processing Fundamental Concepts
Describing the role of computer system hardware components
Demonstrating a knowledge of copyright laws
Describing the organization of auxiliary storage
Recognizing the organization and use of internal data structures
Recognizing relationships among types of computer software --- operating systems, programming languages and applications
Installing, maintaining and backing up media
Using numbering systems
Planning, coding and testing a simple program using structured techniques
Describing the integral relationship among word processing in management information systems
Demonstrating an understanding of data communication (teleprocessing) concepts
Describing and illustrating the uses of a computer spreadsheet
Using a data base program
Using graphics software for charts, graphs and other illustrations
Using electronic mail

Word Processing Fundamental Concepts
Previewing word processing techniques
Designing a document using word processing software
Entering ar editing text using word processing software
Finishing a document using word processing software
Printing a document using word processing software

Data Control Functions
Setting up work station
Previewing data control functions
Scheduling and monitoring jobs
Checking out and returning tapes or disks from the tape/disk library
Preparing backup files
Monitoring disk usage
Copying data
Searching tape, disk or diskette for information
Recovering data after power failure
Performing emergency shutdown procedures
Terminating operation
Deleting job files
Receiving data from remote units
Entering data from optical character recognition device (OCR) (with or without program control)

The student named on this certificate has demonstrated mastery of the following unit level competencies required to perform the job of Programmer, Business.

PROGRAMMER, BUSINESS
(D.O.T. Code 020.162-014)

Employability Skills Fundamentals
Completing the job application process
Demonstrating desirable work traits
Demonstrating an understanding of the importance of the application-related security requirements

Data Processing History and Overview
Demonstrating a knowledge of the information processing cycle
Analyzing the impact of computers on our society
Identifying computer languages by name and major purpose
Describing the classifying factors of types of computers
Using computers in industry
Examining Careers in information systems

Keyboarding
Operating keyboard by touch control

Data Processing Fundamental Concepts
Describing the role of computer system hardware components
Demonstrating a knowledge of copyright laws
Describing the organization of auxiliary storage
Recognizing the organization and use of internal data structures
Recognizing relationships among types of computer software --- operating systems, programming languages and applications
Installing, maintaining and backing up media
Using numbering systems
Planning, coding and testing a simple program using structured techniques
Describing the integral relationship among word processing and data processing in management information systems
Demonstrating an understanding of data communications (teleprocessing) concepts
Describing and illustrating the uses of a computer spreadsheet
Using a data base program
Using graphics software for charts, graphs and other illustrations
Using electronic mail

Word Processing Fundamental Concepts
Previewing word processing techniques
Designing a document using word processing software
Entering and editing text using word processing software
Finishing a document using word processing software
Printing a document using word processing software

Data Control Functions
Scheduling and monitoring jobs

Problem Analysis
Identifying specific user needs
Designing output
Determining input required for program
Developing algorithm using pseudocode/flowchart
Detailing all formulas and calculations

Coding Programs
Coding application programs using structured techniques
Coding application programs using file handling techniques
Developing test data to validate program
Desk checking source program for errors
Analyzing computer output for accuracy following test run
Debugging programs with or without computer aid

Program Documentation
Developing a documentation narrative
Preparing operation documentation
Preparing user documentation
Updating documentation for program

CRITERION-REFERENCED TESTING INTRODUCTION

This section provides information on criterion-referenced testing. Types of tests which can be used for criterion-referenced testing are included and examples of tests are also provided.

CRITERION-REFERENCED TESTING

INTRODUCTION

A criterion-referenced test compares a student's performance with an established standard of performance. The criterion-referenced test should be criterion-referenced, valid, reliable, standardized and economical. The student should be tested relative to a predetermined criteria rather than to the performance of other students. The criterion-referenced test is valid only if it is objective and all conditions for testing have been standardized for each student.

Criterion-referenced test items should be developed using the objectives already presented and restating them as questions or requests for performance of skills. The results of the criterion-referenced test should be used to determine whether the student has attained an acceptable level of performance and/or whether the student is ready to proceed to the next performance objective. Criterion-referenced tests should be used throughout a training program to evaluate the performance objectives.

Types of criterion-referenced tests include written, oral and performance tests.

WRITTEN TESTS

The written test can be the most objective type of test in terms of scoring. Also, many students can be tested at the same time. Diagrams or illustrations can be used to support the tests. The only disadvantage with written tests is that they cannot measure the student's ability to perform a task. The principle use of written tests is to test the student's knowledge of the subject.

Several steps which can be used in developing a criterion-referenced test include the following:

1. Items should be leveled according to the type of learning they represent.
2. Try out the item by asking it of those who know the answer and new students who shouldn't know it.
3. Keep possible responses to the point to avoid confusion.
4. Each item should be independent of other items.
5. Each item should be at the appropriate reading level and be clearly stated.
6. Doublecheck to be sure the answer is correct.
7. Items should reflect and cover objectives and content taught.

Some types of written test items which can be used are multiple choice, completion and matching. Examples of each are shown below.

Matching

Fill in the blanks below by matching the definitions with the numbered items.

1. An information processing machine that can accept data, make decisions and perform calculations.
2. An actual number.
3. A command that will clear the memory of a computer.
4. Each line of a program must have a _______.
5. Sequence of instructions telling a computer how to do something.

____a. New
____b. Program
____c. Constant
____d. Computer
____e. Number

Completion

Data can be stored in _______ ______ within the computer.

Multiple Choice

Assume that A=2, B=5, R=3. Given the equation X=B+R/A, the value of X is

a. 4
b. 6.5
c. 6
d. 5

ORAL TESTS

Oral tests should be prepared in the same manner as written tests except that they will require an oral response. In oral testing, specific questions could be asked which would require short answers. Occasionally, it might be necessary for the student to demonstrate his/her knowledge. If the oral test questions are developed with an objective scoring system, they can be used as criterion tests.

PERFORMANCE TESTS

Performance tests are tests which require the student to perform specific tasks.

Performance tests can often be administered to several students at once if the testing procedure is set up in a rotation order. For example, three work stations could be provided so that each student involved is performing a different task at a separate station. Once finished, the student moves on to the next station and the next task. This method of testing decreases the amount of time the instructor would otherwise spend watching each student perform each task separately.

Some steps which are helpful in preparing performance tests include the following.

1. Specify the objectives to be measured.
2. Describe exactly what you wish to test.
3. Devise the test situation or problem.
4. Make a list of tools, equipment and materials needed for the test.
5. Prepare directions for administering the test.
6. Develop a scoring system for the test.
7. Choose the evaluation instrument to be used.
8. Prepare the evaluation instrument.
9. Review the test - prepare a plan to check for reliability and validity.

Scott, Paul and James F. Watkins. "Criterion Referenced Testing or How Do We Know They Know." University of Georgia. Athens, GA.

Butler, F. Coit. Instructional Systems Development for Vocational and Technical Training. Education Technology Publications. Englewood Cliffs, N.J. 1972.

SAMPLE PERFORMANCE TEST

DATA PROCESSING - DE-05

(Student Name)

MATERIALS AND EQUIPMENT LIST:

Computers
Secondary storage devices

OBJECTIVES:

Given the necessary equipment and storage devices, the student will backup and verify files with 100% accuracy.

INSTRUCTIONS:

This is a timed performance test. You will be given 15 minutes. All necessary equipment and supplies are located at each position.

When you have performed a procedure and the test indicates for you to "Call the instructor"; raise your hand immediately. An instructor will be available to evaluate your work to that point, and tell you to progress (as appropriate), with minimal loss of time.

Should you have any equipment problems, or questions AT ANY TIME; feel free to call the instructor immediately so that your time will not be wasted.

DO NOT START THE TEST UNTIL THE INSTRUCTOR INDICATES THAT YOU MAY BEGIN!

Other types of evaluation instruments which measure a student's performance are the checklist and the scorecard.

CHECKLIST

Time Start _____
Time Stop _____
Grade _____

Task or Unit Competency: Preparing backup files

Task or Unit Competency
Objective: Given the necessary equipment and storage devices, the student will backup and verify files with 100% accuracy.

Directions: Place an (X) in the column that best describes the quality of your work. Ask your instructor to do the same.

PERFORMANCE INDICATORS	Student Check			Instructor Check		
	Poor	Avg.	Excel.	Poor	Avg.	Excel.
a. Is proper sequence followed to backup files?						
b. Are equipment and supplies used properly?						
c. Are backup files verified?						
d. Was task completed within specified time?						
TOTALS						

Student Signature ______________________________

Instructor Signature ______________________________

SCORECARD

Time Start _____
Time Stop _____
Grade _____

Task or Unit Competency: Preparing backup files

Task or Unit Competency Objective: Given the necessary equipment and storage devices, the student will backup and verify files with 100% accuracy.

Directions: Score yourself from 1 to the highest possible score. Ask the instructor to do the same. You must achieve the minimum score for each criteria for successful mastery of the objective.

PERFORMANCE INDICATORS	Std. Score	Min. Score	Self Score	Instr. Score
a. Proper sequence necessary to backup files	15	12		
b. Selection of correct source and destination devices	10	10		
c. Technique in use of equipment and storage devices	10	8		
d. Accuracy in backing up files	15	12		
e. Accuracy in verifying backup files	10	10		
f. Time taken for complete job	10	7		
TOTALS	70	59		

Student Signature ______________________________

Instructor Signature ______________________________

CURRICULUM GUIDE SECTION REFERENCES INTRODUCTION

The following resource listing contains references used throughout the curriculum guide. All references are categorized by their prospective sections. Resource addresses for references are also included.

CURRICULUM GUIDE SECTION REFERENCES

ADMISSIONS AND RECRUITMENT

Athens Area Vocational-Technical School Catalog. Athens, GA: 1982.

Athens Area Vocational-Technical School Student Handbook. Athens, GA: July 1982.

Butler, F. Coit, Instructional System Development for Vocational and Technical Training. Englewood Cliffs, N.J.: Educational Technology Publications, 1976.

Georgia Department of Education, Admissions Guide - Georgia Postsecondary Vocational-Technical Schools. Pittsburgh, PA: Associated Educational Consultants, Inc., April 1982.

Georgia Department of Education, Testing Guide - Postsecondary Vocational-Technical Schools. Pittsburgh, PA: Associated Educational Consultants, Inc., April 1982.

EMPLOYABILITY SKILLS

Don't Get Fired. Hayward, CA: Janus Book Publishers.

Florida Department of Education, "Choosing an Occupation." Employability Skills Series. The Center for Studies in Vocational Education. Florida State University. Tallahassee, Florida, 1980.

Get That Job. Hayward, CA: Janus Book Publishers.

Getting Hired. Hayward, CA: Janus Book Publishers.

Janus Job Interview Guide. Hayward, CA: Janus Book Publishers.

INSTRUCTIONAL MANAGEMENT INFORMATION

Butler, F. Coit, Instructional Systems Development for Vocational and Technical Training. Englewood Cliffs, N.J.: Educational Technology Publications, 1976.

Sage, William L, "The Testing Dilemma." Focus on Guidance. Volume 6, No. 8, April 1974.

Scott, C. Paul and James F. Watkins, "Criterion Referenced Testing." Journal of Studies in Technical Careers. Volume IV, No. 4, Fall 1982, Pp. 347-355.

FACILITIES

Meade, Russell L., *Installing and Operating an Individualized Instruction Program*. Atlanta, GA: Georgia Department of Education, 1982.

GLOSSARY

Georgia Department of Education, *Curriculum Development Standards and Specifications*. Atlanta, GA, 1982.

OCCUPATIONAL INFORMATION

Dictionary of Occupational Titles. Washington, D.C.: U.S. Department of Labor, 1977.

Field, Timothy F. and Field, Janet E., *The Classification of Jobs According to Worker Trait Factors*. Roswell, GA. North Fulton Printing, 1982.

Occupational Outlook Handbook. Washington, D.C.: U.S. Department of Labor, 1980-81.

Occupational Outlook Handbook. Washington, D.C.: U.S. Department of Labor, 1982-83.

Sink, Jack M. and Field, Timothy F., *Vocational Assessment Planning and Jobs*. Athens, GA: VDARE Service Bureau, 1981.

SPECIAL NEEDS

Sarkees, M. and Scott, J., *Vocational Special Needs - Preparing T & I Teachers*. Alsip, IL: American Technical Publishers, 1981.

Mentally Retarded

A Curriculum Guide for Teachers of Educable Mentally Retarded. Danville, IL: The Interstate Printers and Publishing Co., Inc.

High, Elizabeth C., and Moyers, Kathy L., *Training Manual: Developing Pre-Vocational/Vocational Skills in Developmentally Disabled Persons*. Washington, D.C.: Job Development Laboratory, George Washington University, 1976.

Kolstoe, Oliver P., *Teaching Educable Mentally Retarded Children*. NY: Holt, Rinehart and Winston, 1976.

Mulligan, Robert E.; Gavin, Donald and Conaley, James, *Comprehensive Career Education Curriculum Guide for the Trainable*. New Brunswick, N.J.: Rutgers Vocational-Technical Curriculum Laboratory, 1977.

Introduction to Vocations for Educable Mentally Retarded. New Jersey: New Jersey Department of Education.

State of Ohio Curriculum Guide for Moderately Retarded Learners. Columbus, Ohio: Ohio Department of Education, 1977.

Tucker, Mark M., *Learning through Curriculum Modification: A Blueprint to Teaching the Mentally Retarded*. Johnstown, PA: Mafex Associates, Inc., 1976.

Watson, Marjorie, *Mainstreaming the Educable Mentally Retarded*. Washington, D.C.: NEA, 1975.

Hearing Impaired

Alvin, Howard P., *The Evolution of an Evaluation Design for Evaluating Secondary Programs for the Deaf in Vocational Occupational-Technical Education (VOTE) Programs*. ERIC ED 123-241.

Guidelines: Educational Planning for the Hearing Handicapped. Raleigh, NC: North Carolina Public Schools. Division for Exceptional Children, North Carolina Department of Public Instruction, 1977.

Munson, Harold L.; Eglston, Judy Cobb and Phillips, Gordon B., *Career Education for Deaf Students: An In-Service Leader's Guide*. Rochester, NY: University of Rochester, College of Education, Center for the Study of Helping Services, 1975.

Nix, Gary W., *Mainstreaming Education for Hearing Impaired Children and Youth*. NY: Grune and Stratton, 1976.

Visually Impaired

Coker, D. G., "The Development of a Vocational Program in a Residential School for the Visually Handicapped." *The New Outlook for the Blind*, 1974, *68*, pp. 25-28.

The Current Status of Prevocational Services for the Deaf-Blind Through the Regional Center Program. Austin, Texas: Management Services Associates, 1976.

"Employment Counseling." *Rehabilitation Counseling of the Blind*. Springfield, IL: Charles C. Thomas, 1970.

Rossi, C., Jr., and Marrotta, M., "Breaking Blind Stereotypes." *The New Outlook for the Blind*. 1974, *68*, pp. 29-32.

Ruffino, C. R., and Canterbury, C. E., "The Visually Handicapped in the Environment." *School Shop*. 1978, *37*, pp. 70-77.

Tremble, J. T., and Campbell, L. F., "A Diversified Cooperative Work-Experience Program for Blind and Multiply Handicapped Blind Students." *The New Outlook for the Blind*. 1973, *67*, pp. 216-220.

Wilson, E. L., "Assessing the Readiness of Blind Persons for Vocational Placement." *The New Outlook for the Blind*. 1974, *68*, pp. 57-60.

Orthopedically and Other Health

A Model Plan for a Cooperative Vocational Rehabilitation Program. Washington, D.C.: Office of Human Development, Rehabilitation Services and Welfare.

Malliz, Kalisanker and Mueller, Jim., *Vocational Aids and Enhanced Productivity of the Severely Disabled*. Washington, D.C.: The George Washington University Rehabilitation Research and Training Center, 1975.

McCarthy, Henry and Smart, Landon. *Recommendations for Enhancing Employment Prospects of Handicapped Individuals*. Albertson, L.I.: Comps. Human Resources Center, 1978.

Duncan, John, et al., "Environmental Modifications for the Visually Impaired: A Handbook." *Visual Impairment and Blindness*. December 1977, p. 442-455.

Disadvantaged

Guidelines for Methods and Techniques of Teaching Disadvantaged Students. Blacksburg, VA: Division of Vocational Education, Virginia Polytechnic Institute and State University.

A Handbook for Developing Programs and Services for Disadvantaged Students. Carbondale, IL: Department of Vocational Education Studies, College of Education, Southern Illinois, University of Carbondale.

Knapper, C., Project SERVE. Athens, Ga.: Project SERVE Athens Satellite Center.

Van House, P. and Leatherwood, M., "Working with the Disadvantaged Student in Vocational Education." Clarkston, Ga.: Project SERVE DeKalb Satellite Center.

Clowers, M. R., and Stolow, W. C., *Handbook of Severe Disabilities*. Washington, D.C.: U. S. Government Printing Office, 1981.

General Special Needs

A Handbook for Modifying Vocational Curricula for Handicapped Students. Madison, WI: Wisconsin Vocational Studies Center, University of Wisconsin, May 1980.

Bottoms, J. E. and Scott, C. P., "Supportive Services for Special Student Groups." In J. E. Wall (ed.). *Vocational Education for Special Groups*. Sixth Yearbook, Washington, D.C.: American Vocational Association, 1976.

Bill, Douglas H., *Working with Special Needs Students: A Handbook for Vocational Education Teachers*. Atlanta, GA: Georgia Department of Education, 1982.

Gill, Douglas H. and Scott, C. Paul., "A Practical Model for Mainstreaming Handicapped Learners in Vocational Education." *The Journal for Vocational Special Needs Education*, Vol. 1, No. 3, April, 1979, pp. 3-7.

Gugerty, J., et al., *Tools, Equipment and Machinery Adapted for the Vocational Educator and Employment of the Handicapped*. Madison, WI: Wisconsin Vocational Studies Center, University of Wisconsin, 1981.

Hull, Marc E., Berry, Owen J. and Clark, Donald L., *Procedures for Teaching Vocational Concepts to Students with Special Needs*. College Station, TX: Texas A & M University, June 1976.

Vocational Educational Resource Materials, A Bibliography of Materials for Handicapped and Special Education. Madison, WI: Wisconsin Vocational Studies Center, University of Wisconsin, 1978.

CURRICULUM CONTENT

Textbooks and Student Manuals

Allen, Warren W. and Klooster, Dale H. *Automated Accounting for the Microcomputer*. Cincinnati, OH: South-Western Publishing Company, 1982.

Arnston, L. Joyce. *Word/Information Processing Concepts and Procedures*. Boston, MA: Kent Publishing Company.

Beheshti, Hooshang N. and Mattson, Melvin R. *Data Processing A User's Approach*. Reston, VA: Reston Publishing Company, Inc., 1985.

Brooks, Lloyd D. Word Processing Practice and Applications. New York: McGraw-Hill, 1983.

Capron, H. L. and Williams, Brian K. Computers and Data Processing (2nd ed.). Menlo Park, CA: The Benjamin Cummings Publishing Company, Inc., 1984.

Clark, James F. and Drum, William O. Structured Basic. Dallas, TX: South-Western Publishing Company, 1983.

Clark, James F. and Lambrecht, Judith J. Information Processing. Cincinnati, OH: South-Western Publishing Company, 1985.

Daggett, Willard R., Badrkhan, Kamiran S., and Kruse, Benedict. Computers and Information Technology. Cincinnati, OH: South-Western Publishing Company, 1985.

Dale, Nell and Orshalick, David. Introduction to Pascal and Structured Design. Lexington, MA: D.C. Heath and Company, 1983.

Davis, Gordon B. Computers and Information Processing. New York: McGraw-Hill, 1977.

Findlay, William and Watt, David. PASCAL: An Introduction to Methodical Programming. Rockville, MD: Computer Science Press, Inc., 1982.

Gilbert, Harry M. and Larky, Arthur I. Practical Pascal. Cincinnati, OH: South-Western Publishing Company, 1984.

Horn, L. Wayne and Gleason, Gary M. Beginning Structured COBOL. San Francisco, CA: Boyd & Fraser Publishing Company, 1983.

Mandell, Steven L. Computers and Data Processing with BASIC. New York: West Publishing Company, 1984.

McLean, Gary N. Keyboarding for Everyone. Anaheim, CA: Anaheim Publishing Company, 1984.

Meroney, John W. Word Processing Applications in Practice. Cincinnati, OH: South-Western Publishing Company, 1984.

Minnesota Education Computer Corsortium. The Electronic Spreadsheet. 1984.

Orilia, Lawrence S. Introduction to Business Data Processing. New York: McGraw-Hill, 1982.

Popyk, Marilyn K. Word Processing: Essential Concepts. New York: McGraw-Hill, 1983.

Popyk, Marilyn K. Word Processing and Information Systems: A Practical Approach to Concepts. New York: McGraw-Hill, 1983.

Presley, Bruce. A Guide to Programming in Applesoft. New York: Van Nos Reinhold Company, Inc., 1984.

Rademacher, Dr. Robert A. and Gibson, Dr. Harry L. An Introduction to Computers and Information Systems. Cincinnati, OH: South-Western Publishing Company, 1983.

Reiss, Levi. Computer Literacy. Boston, MA: Prindle, Weber & Schmidt (PWS) Publishers, 1984.

Robichaud, Beryl, Muscat, Eugene and Hall, Alix-Marie. Introduction to Data Processing. New York: McGraw-Hill, 1983.

Robichaud, Beryl, Muscat, Eugene and Hall, Alix-Marie. Data Processing Work Kit. Cincinnati, OH: New York: McGraw-Hill, 1983.

Russon, Allien R. and Wallace, Harold R. Personality Development for Work. Cincinnati, OH: South-Western Publishing Company, 1981.

Sanders, Donald H. Computers Today. New York: McGraw-Hill, 1983.

Shelly, Gary B. and Cashman, Thomas J. Business Systems Analysis and Design. Bre[illegible], CA: Anaheim Publishing Company, 1975.

Shelly, Gary B. and Cashman, Thomas J. Computer Fundamentals for an Information Age. Anaheim Publishing Company, 1984.

Shelly, Gary B. and Cashman, Thomas J. Computer Programming RPG II. Brea, CA: Anaheim Publishing Company, 1981.

Shelly, Gary B. and Cashman, Thomas J. Introduction to BASIC Programming. Brea, CA: Anaheim Publishing Company, 1982.

Shelly, Gary B. and Cashman, Thomas J. Introduction to Computer Programming Structured COBOL. Brea, CA: Anaheim Publishing Company, 1980.

Shelly, Gary B. and Cashman, Thomas J. Introduction to Computer Programming Structured BASIC. Brea, CA: Anaheim Publishing Company, 1982.

Shelly, Gary B. and Cashman, Thomas J. Introduction to Computers and Data Processing. Brea, CA: Anaheim Publishing Company, 1980.

Shelly, Gary B. and Cashman, Thomas J. *Introduction to Flowcharting and Computer Programming Logic*. Brea, CA: Anaheim Publishing Company, 1979.

Singelmann, Jay and Longhurst, Jean. *Business Programming Logic* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall, Inc., 1985.

Tandy Corporation, *Introduction to Basic*. Ft. Worth, TX: Tandy Corporation.

Tandy Corporation, *Superscriptsit*. Ft. Worth, TX: Tandy Corporation.

Wagner, Gerald E., Crawford, John B., and Gruver, Donald R. *Computer Center Operations*. Cincinnati, OH: South-Western Publishing Company, 1984.

Zabinski, Michael P. *Introduction to TRS-80 Level II BASIC*. Englewood Cliffs, NJ: Prentice-Hall Inc., 1980.

Audiovisuals

Anaheim Publishing Company
  "Introduction to Computer Programming" (Transparency)
  "Introduction to Computers and Data Processing" (Transparency)

Education Dimensions Group
  "Career Jobs in the 80's" (Filmstrip)

Encyclopedia Britanica Series
  "Understanding computers" (Filmstrip)

McGraw-Hill
  "Introduction to Business Data Processing" (Transparency)

Milady
  "Concepts of Data Processing" (Filmstrip)

South-Western
  "An Introduction to Computers and Information Systems" (Transparency)
  "Introduction to Automated Data Processing" (Filmstrip)

Tandy Corporation
  "Introduction to Basic" (Transparency)
  "Superscriptsit" (Cassette Tape)

Software

Apple Corporation
  "Apple Writer"
  "Apple Works"

Intentional Education, Inc.
"Bank Street Writer"

McGraw-Hill
"Introduction to Data Processing"
"Microcomputer Applications for the Data Processing Work Kit"

MECC
"The Electronic Spreadsheet"

Personal Software, Inc.
"VisiCalc"

Sierra On-Line
"Homeword"

South-Western Publishing Company
"Computer Applications for Information Processing"

RESOURCE ADDRESS

American Technical Society
5608 Stony Island Avenue
Chicago, IL 60637

Anaheim Publishing Company
1120 E. Ash
Fullerton, CA 92631

Apple Corporation
P.O. Box 241028
Charlotte, NC 28224

Athens Area Vocational
Technical School
U.S. Highway 29 N.
Athens, GA 30601

Benjamin-Cummings Publishing
Company
2727 Sand Hill Road
Menlo Park, CA 94025

Boyd & Frazer Publishing
Company
3627 Sacramento Street
San Francisco, CA 94118

Bureau of Labor Statistics
U.S. Government Printing
Office
Washington, DC 20402

Center for the Study of
Helping Services
University of Rochester
Rochester, NY 14627

Charles C. Thomas Publishers
2600 S. First St.
Springfield, IL 62717

Computer Science Press, Inc.
11 Taft Court
Rockville, MD 20850

D.C. Heath Company
125 Spring Street
Lexington, MA 02173

Educational Technology
Publications
140 Sylvan Ave.
Englewood Cliffs, NJ 07632

Encyclopedia Britannica
Education Corporation
425 N. Michigan Ave.
Chicago, IL 60611

Florida State University
Career Education Center
Tallahassee, FL 32306

Georgia Office of Vocational
Education
Georgia Department of
Education
Twin Towers
Atlanta, GA 30334

George Washington University
Rehabilitation Research and
Training Center
Washington, DC 20006

Grune and Stratton
111 Fifth Ave., 12th Fl.
New York, NY 10003

Holt, Rinehart and Winston
383 Madison Avenue
New York, NY 10017

Howard W. Sams and Co., Inc.
4300 W. 62nd Street
Indianapolis, IN 46206

Interstate Printers and
Publishing Company
19-27 N. Jackson St.
Danville, IL 61832

Janus Book Publishers
2501 Industrial Parkway West
Hayward, CA 94545

Kent Publishing Company
20 Providence Street
Boston, MA 02116

Mafax Associates, Inc.
9(Cherry Street
Johnstown, PA 15902

McGraw-Hill Book Company
330 West 42nd Street
New York, NY 10036

McKnight Publishing Company
Box 2854
Bloomington, IL 61707

Milady Publishing Company
3829 White Plains Road
Bronx, NY 10467

North Carolina Department of
Education
Department of Public
Instruction
Raleigh, NC 27603

North Dakota Research
Coordination Unit
State Board of Vocational
Education
State Office Building
Bismarck, ND 58501

Office of Human Development
Rehabilitation Services and
Welfare
Washington, DC 20202

Ohio Department of Education
Columbus, OH 43216

Ohio State University
Trade and Industrial Education
Columbus, OH 43210

Oklahoma State Department of
Vocational and Technical
Education
1515 W. Sixth Street
Stillwater, OK 74074

Prentice-Hall, Inc.
Englewood Cliffs, NJ 07632

Prindle, Weber & Smith
20 Providence Street
Boston, MA 02116

Project SERVE
Athens Satellite Center
Athens, GA 30601

Project SERVE
DeKalb Satellite Center
Clarkston, GA 30021

Radio Shack
A Division of Tandy
Corporation
Ft. Worth, TX 76102

Reston Publishing Co., Inc.
11480 Sunset Hills Road
Reston, VA 22090

Rutgers Vocational-Technical
Curriculum Laboratory
Rutgers University
Bldg. 4103-Kilmer Campus
New Brunswick, NJ 08903

South-Western Publishing Co.
5101 Madison Rd.
Cincinnati, OH 45227

(The) Superintendent of
Documents
United States Government
Printing Office
Washington, DC 20402
Texas A & M University
College Station, TX 77843

University of Carbondale
Department of Vocational
Education Studies
Carbondale, IL 62901

University of Texas at Austin
P.O. Box P
Austin, TX 78712

U.S. Department of Labor
Employment and Training
Administration
Washington, DC 20402

Van Nostrand Reinhold Co.,
Inc.
135 W. 50th Street
New York, NY 10020

VDARE Service Bureau
P.O. Box 1945
Athens, GA 30603

Virginia Polytechnic Institute
and State University
Division of Vocational
Education
Blacksburg, VA 24060

Vocational Educational
Materials Center
The University of Georgia
Green Street
Athens, GA 30602

V'TECS
Southern Association of
Colleges and Schools
795 Peachtree Street, N.E.
Atlanta, GA 30365

West Publishing Company
50 W. Kellogg Boulevard
St. Paul, MN 55165

Wisconsin Vocational Studies
Center
University of Wisconsin -
Madison
964 Educational Services Bldg.
1025 W. Johnson Street
Madison, WI 53706

GEORGIA PERFORMANCE STANDARDS REQUIRED FOR GRADUATION INTRODUCTION

On the following pages the Georgia Peformance Standards for Graduation are presented. The major thrust of these standards is that Georgia secondary schools should assist students in becoming competent in adult life role skills in addition to academic and vocational skills. This section details those adult life role skills and discusses various methods in which they can be implemented into vocational programs.

GEORGIA PERFORMANCE STANDARDS REQUIRED FOR GRADUATION

INTRODUCTION

The Georgia Board of Education Policy IHF, a plan for all Georgia secondary schools, was adopted in March 1980. With its passage, secondary schools have found it necessary to comply with the requirements set forth by the plan. The major thrust of Policy IHF is that Georgia secondary schools assist students in becoming competent in adult life role skills. As a result, instructors must teach those adult life role skills necessary to survive in our society in addition to their regular academic or vocational curriculum.

TOPICS COVERED IN THIS SECTION

1. What are adult life role skills?
2. How can a life role skill be integrated into vocational programs?

WHAT ARE ADULT LIFE ROLE SKILLS?

Adult life role skills are those skills which are necessary for survival in our society. In Policy IHF, students are required to demonstrate competence in the adult life role skills of learner, individual, citizen, consumer and producer.

LEARNER

Citizens should demonstrate competence in the areas of reading, writing, mathematics, speaking and listening and problem solving.

A. Competency 1: Reading

Students will demonstrate competence by the ability to read, understand, interpret and use written materials in the context of academic problems, everyday tasks and employment activities.

Performance Objectives:

1. Distinguishes between fact and opinion.
2. Interprets semantic relationships.
3. Recognizes explicitly stated main ideas, details, sequence of events, and cause and effect relationships.
4. Follows directions.
5. Interprets figurative language.

6. Recognizes propaganda techniques.
7. Recognizes implicitly stated main ideas, details, sequence of events and cause and effect relationships.
8. Makes predictions, generalizations and comparisons.
9. Draws conclusions.
10. Interprets graphic information, instructions and labeling information, forms and applications, transportation information and occupational and career information.
11. Recognizes relevance of data.
12. Recognizes appropriate reference resources.
13. Locates information in reference materials.

B. Competency 2: Mathematics

Students will demonstrate competence by the ability to understand and employ basic mathematical concepts and operations in the context of academic problems, everyday tasks and employment activities.

Performance Objectives:

1. Translates from words to numerals and the reverse.
2. Orders fractions, decimals or percents.
3. Translates from decimals to percents and the reverse.
4. Translates from fractions to percents and the reverse.
5. Translates from fractions to decimals and the reverse.
6. Selects appropriate operations for a given problem situation.
7. Computes with whole numbers, fractions, decimals and percents.
8. Applies properties of operations.
9. Solves simple word problems.
10. Applies proportions.
11. Applies formulas.
12. Computes the mean and median.
13. Determines probabilities.
14. Organizes the data into tables, charts, and graphs.
15. Interprets data in the form of tables, charts and graphs.
16. Identifies customary or metric units to meassure lengths, area, volume, weight, time and temperature.
17. Applies customary or metric units of measurement to determine length, area, volume, weight, time and temperature.
18. Estimates numbers (results) using round numbers, with or without units of measurement.
19. Determines amounts of money.
20. Identifies sets of points using standard names.
21. Identifies geometric relations and properties.
22. Identifies points on cartesian coordinates.

C. Competency 3: Problem Solving

Students will demonstrate competence by the ability to evaluate, analyze and draw conclusions from situations presented in the context of academic problems, everyday tasks and employment activities.

1. Distinguishes between fact and opinion.
2. Recognizes main ideas, details, sequence of events, and cause and effect relationships.
3. Recognizes appropriate reference sources.
4. Locates information in reference materials.
5. Estimates outcomes, with or without units of measurements.
6. Draws conclusions.
7. Interprets non-graphic instructions, labels, forms and applications.
8. Recognizes relevance of data.
9. Organizes data into tables, charts and graphs.
10. Interprets data in the form of tables, charts and graphs.
11. Makes predictions, generalizations and comparisons.
12. Solves simple word problems.

D. Competency 4: Writing Students

Students will demonstrate competency by the ability to select, organize and compose written material in the context of academic problems, everyday tasks and employment activities. Indicators of writing include such skills as composing sentences, organizing information and writing paragraphs.

E. Competency 5: Speaking and Listening

Students will demonstrate competence by the ability to receive and transmit oral and aural communication in the context of academic problems, everyday tasks and employment activities. Indicators of speaking and listening may include interpreting aural communications, composing oral directions and questions and using formal and informal speaking styles.

INDIVIDUAL

Citizens should have the skills and understanding necessary to improve both physical and mental health. They should be able to use leisure time in a manner which is profitable and fulfilling. They should be able to establish a personal family role which is mutually beneficial to them and to members of their family.

A. Competency 1: Health and Safety

Performance Objectives:

A-1 Identifies causes, symptoms and methods of prevention and treatment for major non-communicable diseases.

A-2 Recognizes information about and identifies causes, symptoms and possible outcomes of the use of potentially harmful substances.

A-3 Demonstrates knowledge of principles and practices related to personal health.

A-4 Demonstrates knowledge of human reproduction, growth and development.

A-5 Demonstrates knowledge of mental health principles and practices.

A-6 Identifies causes, symptoms and methods of prevention and treatment for major communicable diseases.

A-7 Demonstrates knowledge of environmental factors and their influence on physical and mental health.

A-8 Demonstrates a knowledge of physical fitness principles and their relationship to health.

A-9 Demonstrates knowledge and skills related to sound nutrition principles and practices.

A-10 Demonstrates knowledge and skills related to safety principles and procedures.

A-11 Demonstrates knowledge of first aid principles and procedures.

B. Competency 2: Leisure Time Activities

Performance Objectives:

B-1 Demonstrates knowledge and identifies skills needed to participate in a variety of leisure activities.

B-2 Identifies community agencies and facilities which provide avocational, self-improvement, recreational and entertainment opportunities.

B-3 Demonstrates skills and knowledge associated with decisions related to personal and family travel and transportation.

B-4 Recognizes the contributions of leisure time activities to physical and mental health.

C. Competency 3: Family and Community Living

Performance Objectives:

C-1 Identifies knowledge and skills necessary for developing good relationships with family members and others.

C-2 Demonstrates knowledge related to family planning alternatives and identifies consequences of individuals' responsibilities for sexual activity.

C-3 Recognizes sound principles and practices related to parental responsibilities and child care.

C-4 Identifies the consequences of behaviors related to personal relationships and decision making.

CITIZEN

Citizens should have the skills and understanding to become responsible members of society, both using and contributing to society in an appropriate manner and interacting with the environment in a responsible way.

D. Competency 1: American Political and Economic Systems

Performance Objectives:

D-1 Demonstrates knowledge of the structure, function and relationships of local, state and national governments.

D-2 Recognizes the kinds, purposes and uses of taxes.

D-3 Identifies characteristics of and makes comparisons among major types of economic systems.

D-4 Identifies and compares economic problems of world societies.

D-5 Demonstrates knowledge of basic economic principles.

D-6 Demonstrates knowledge of human interdependence and the manner in which relations with other nations are developed and maintained.

D-7 Identifies contributions to the development of our country and culture by peoples from many nations and ethnic groups.

D-8 Identifies characteristics of and makes comparisons among major types of political systems.

E. Competency 2: Citizen Rights and Responsibilities

Performance Objectives:

E-1 Demonstrates knowledge and skills related to a citizen's legal rights and responsibilities.

E-2 Identifies the structure, purpose and process of the American legal system.

E-3 Demonstrates knowledge and skills needed to use and interpret basic legal documents.

E-4 Demonstrates knowledge of the causes of, solutions to, and prevention of environmental and societal problems.

F. Competency 3: Citizen Participation

Performance Objectives:

F-1 Demonstrates skills and knowledge needed to engage in and influence decision making in the American political system.

F-2 Identifies civic responsibilities of individuals and recognizes ways these responsibilities may be met.

PRODUCER

Citizens should have the skills and knowledge necessary to select and pursue careers which reflect personal interest and abilities. They should also have the skills needed to pursue new careers should a situation arise which dictates a change.

G. Competency 1: Career Decision Making

Performance Objectives:

G-1 Identifies realistic plans for attaining tentative career goals.

G-2 Matches individual characteristics, interests, and abilities with career characteristics and requirements.

G-3 Identifies steps involved in making a career choice.

G-4 Identifies and compares income benefits and expenses associated with various occupations.

G-5 Identifies factors which affect career and job satisfaction.

G-6 Recognizes factors beyond an individual's control that affect career choices.

G-7 Identifies sources of information and assistance for career decision making.

H. Competency 2: Job Acquisition and Retention

Performance Objectives:

H-1 Recognizes and uses sources of information and assistance for finding employment.

H-2 Identifies characteristics and behaviors necessary for job success and advancement.

H-3 Recognizes behaviors and skills necessary for a successful job interview.

H-4 Recognizes information and demonstrates skills needed to complete employment documents.

I. Competency 3: Career Mobility

Performance Objectives:

I-1 Identifies events or conditions that may necessitate career change.

I-2 Identifies opportunities for advancement in various occupations.

I-3 Identifies ways for re-training for job advancement or career change.

I-4 Identifies personal skills needed to prepare for and cope with career change.

CONSUMER

Citizens should have the skills and knowledge to be informed consumers in order to use available resources in an efficient and beneficial manner.

J. Competency 1: Personal Resource Management

Performance Objectives:

J-1 Demonstrates skills and knowledge related to developing and maintaining a personal budget.

J-2 Demonstrates skills and knowledge for preparing, checking and maintaining accurate financial forms and records.

J-3 Recognizes the effects of national economic conditions on individual money management.

J-4 Identifies sources of information and assistance with management of personal resources.

J-5 Demonstrates skills and knowledge required to seek out information and make decisions associated with the purchasing of goods and services.

J-6 Computes and compares costs of various alternatives related to housing.

J-7 Recognizes purposes, methods and information related to the use of savings and checking accounts, securing loans and investing.

J-8 Demonstrates knowledge related to selecting and analyzing insurance coverage.

J-9 Identifies purposes, methods and costs involved in credit purchases.

K. Competency 2: Consumer Rights and Responsibilities

Performance Objectives:

K-1 Identifies rights and responsibilities related to financial transactions among individuals, institutions and companies.

K-2 Recognizes an individual's rights and responsibilities in establishing and maintaining credit ratings.

K-3 Demonstrates skills and knowledge about the rights and responsibilities of a consumer making purchases.

K-4 Distinguishes between fact and opinion and recognizes various promotional tactics related to sales and advertising.

K-5 Interprets consumer protection information and documents related to purchases.

HOW CAN ADULT LIFE ROLE SKILLS BE INCORPORATED INTO VOCATIONAL PROGRAMS

As a vocational instructor, you are in an ideal position to reinforce adult life role skills. Activities which will assist students in achieving the performance objectives of the learner, individual, citizen, consumer and producer saturate vocational programs.

A complete listing of performance objectives for the adult life role skills was previously presented. The feasibility of covering every skill in your program is highly improbable. However, many adult life role skills are applicable to vocational programs in that they are directly related to different aspects of employment.

In a lab set up as a business, as illustrated in the EMPLOYABILITY SECTION, students must become aware of many aspects of a business. For example, students will need to know about items such as decision making, operating the economics of the business, legal responsibilities of the business and making financial transactions.

Other activities which could potentially be incorporated into vocational programs are provided below.

THE LEARNER

READING

Have the student:
--follow directions

--interpret graphic information, instructions, and labeling information, forms and applications, transportation information and occupational and career information

MATHEMATICS

Have the student:
--select appropriate operations for a specific problem situation
--apply formulas

PROBLEM SOLVING

Have the student:
--estimate outcomes, with or without units of measurements
--distinguish between fact and opinion

WRITING

Have the student:
--fill out job applications
--compose a resume

SPEAKING AND LISTENING

Have the student:
--compose oral directions
--participate in a simulated interview

THE INDIVIDUAL

Have the student:
--practice good grooming
--know and understand safety procedures and principles

THE CITIZEN

Have the student:
--become familiar with the kinds, purposes and uses of taxes
--become famliar with legal rights (theirs and others)

THE PRODUCER

Have the student:
--match personal interests and characteristics with a potentialjob
--become familiar with skills necessary for finding and keeping a job

THE CONSUMER

Have the student:
--become aware of rights and responsibilities of making purchases
--become aware of the responsibilities related to making financial transactions

DAILY LESSON PLAN INTRODUCTION

A daily lesson plan, a tool developed to aid the instructor with planning instructional strategies, is presented on the following two pages. Unit guide sheets can be adapted to the daily lesson plan with minimum modifications.

DAILY LESSON PLAN*

NAME ______________________ DATE _______ PERIOD 1 2 3 4 5 6

COURSE TITLE AND NUMBER: ______________________________________

UNIT TOPIC: ______________________________________

COURSE CONTENT: ______________________________________

____

____

____

DAILY PERFORMANCE OBJECTIVES FOR STUDENTS: Code levels of Objectives: K = Knowledge; C = Comprehension; Ap = Application; An = Analysis; S = Synthesis; E = Evaluation

The students will:

____

TEACHING STRATEGIES (Procedures)

___ check roll
___ introduce lesson
___ discuss previous lesson
___ give directions and explanation
___ board work
___ lecture
___ discussion
___ demonstration
___ role play
___ review student work
___ questioning
___ oral or written feedback
___ drill and practice
___ inquiry
___ problem solving
___ application activities
___ research
___ critical thinking

STUDENT ACTIVITIES

___ library work
___ board work
___ discussion
___ role play
___ simulation
___ definitions
___ notetaking
___ debate
___ research
___ seat work
___ valuing
___ small group
___ large group
___ individualized
___ independent study
____
____
____
____

TEACHING RESOURCES/ MATERIALS

___ textbook
___ worksheet
___ chalkboard
___ overhead projector
___ recorder
___ models
___ maps/globes
___ instruments
___ magazines/periodicals
___ computer
___ videotape
___ audio cassette
____
___ film ________
___ filmstrip_____
____
___ games ________
____
___ speaker ______
___ fieldtrip_____
___ ETV/ITV ______
___ equipment ____

EVALUATION PROCEDURES AND MATERIALS FOR LESSON:

___ pre-assessment (pretest)
___ progress checks:
    ___ homework
    ___ pop quiz
    ___ daily work
    ___ participation
    ___ teacher observation

___ unit/chapter test
___ quarter/semester exam
___ record of individual learner progress maintained in gradework and/or chart or file
___ Other ______________________

CONDUCT (List names of students exhibiting discipline problems which interfere with learning.)

ABSENCES (List of students absent.)

ASSIGNMENTS (classwork and homework, etc.)

TEACHER NOTES (description of activities, evaluation of lesson, problems, etc.)

REMEDIAL ACTIVITIES

ENRICHMENT ACTIVITIES

*Adapted from Columbia County School System

GLOSSARY

GLOSSARY

Contents Listing

Glossary Introduction 3
Terms - Part One 4
Terms - Part Two 10

GLOSSARY INTRODUCTION

The Glossary section is divided into two parts, TERMS - PART ONE and TERMS - PART TWO. Part One provides definitions for terms that are included in Curriculum Development Standards and Specifications, a document issued by the Vocational Division of the Georgia Department of Education. These terms relate to the broad area of vocational education. Part Two provides definitions for terms related to the curriculum guide but not included in Part One. You may desire to add more terms to the listings provided.

TERMS - PART ONE

AMPLITUDE - (When referring to recording) Refers to level of signal.

ARTICULATED PROGRAM - A curriculum program which provides for a continuous progression from secondary to postsecondary levels of training.

ASSEMBLE EDIT - (When referring to video recording) Refers to video tape editing where there is no continuous previously recorded "control track." Recording new audio and video information from one tape to another.

ASSIGNMENT INFORMATION SHEET (TEXT) - A sheet containing specific text page numbers for assignments from commercial texts and manuals used in a given program.

AUDIOVISUAL SUMMARY SHEET - A list of audiovisuals for a given program wherein information is given regarding the presentation titles, whether the presentations are stated-developed or commercial, state numbering for each presentation, source of commercial presentations and other related information.

BASIC SKILLS - "Skills which enable one to address effectively and efficiently the decisions and opportunities presented in a technological, urban, free society." (Policy IHF), the role of learner.

BLEED AREA - In printing, the area of image that will be trimmed after printing.

CAMERA READY - Indicates that the copy is either original typed or typeset copy, drawings, etc. or of equivalent quality as to contrast, cleanliness, sharpness, layout, etc, so that for printing, a high quality plate can be made, and for photographic purposes, material will photograph well.

COMPETENCY - A combination of related tasks, generally equates to an assignment received by a worker on the job. A cluster or grouping of related tasks. The ability (knowledge, skills and attitudes) to perform a group or cluster of related tasks required to complete a designated activity according to occupational standards.

COMPETENCY-BASED INSTRUCTION - Instruction which derives content from tasks performed in a given occupation/job and in which students are assessed for their performance on the basis of present occupational performance standards. Student performance and knowledge is individually evaluated against stated criteria, rather than against group norms.

COMPETENCY RECORD - A document or certificate which delineates the competencies that a student has acquired and proven by performance against industrial norms and to the satisfaction of the instructor and/or other officials signing the document. A record which is useful for articulation purposes, for providing information to potential employers, for tracking student progress, etc.

COMPLIANCE STATEMENT(S) - Statements included in state-developed curriculum documents which indicate that there is compliance with federal and other regulations related to non-discrimination, both in policy and in practice.

COURSE - Trainng wherein a grouping of competencies which have a common knowledge base, or are within a given domain are covered.

CRITERION-REFERENCED MEASURE - An exercise based upon a performance objective, the accomplishment of which measures attainment of that objective, a criterion-referenced measure as opposed to a "norm" based measure.

CRITERION-REFERENCED TEST - Sometimes referred to as criterion-referenced measure, final evaluation, final assessment, criterion exam, or checkout activity, one connotation is that it is a test designed to measure student competencies based on job or industrial standards. Another connotation is that it is an evaluation of student performance or knowledge of a task according to the conditions and standards stated in the performance objective.

D.O.T. CODE - Abbreviation for dictionary of occupational titles code. This document provides nine-digit codes identifying each occupation.

ESTABLISHING SHOT - (As used in videotaping) Refers to the opening shot in a given scene which establishes reference points within the scene for shots that follow.

EXIT POINT - A predetermined point within an instructional program in which a student may exit with the essential competencies for a specific job, usually defined in terms of D.O.T. and/or office of education (O.E.) codes.

FIELD REVIEW - Generally, a review of newly developed materials by those with industrial and/or instructional and content expertise for the purpose of evaluating the materials and providing useful feedback to the developers of the materials.

FIELD TEST - The evaluation of instructional materials in selected programs, under actual teaching conditions.

FIELD TEST PRODUCTS - Newly developed instructional materials which are in proper formats and are at the stage of development just prior to finalizing into finished, reproducible form, (i.e. to finalize only requires incorporating information, corrections and/or modifications indicated through field testing).

HORIZONTAL FORMAT - (When referring to 35mm slides) Refers to slides in which the picture content is such that the top and bottom of the picture are adjacent to the longer sides of the slide-frame "window" and the left and right sides of the picture are adjacent to the shorter sides of the slide-frame window.

IMAGE AREA - The area in printed or photographic materials that "should show" in the finished product. That part of the print, illustration, etc. which appears within the boundaries or limits of the printed page, projected slide, etc. usually, the image area has defined dimensional limits for any given medium.

INSERT EDIT - (As used in videotaping) Refers to an edit used if an existing control track is used from the existing "slave tape", and it is desired to retain existing audio or video on the slave tape and to insert audio only -- video only -- or any combination of these.

LIFE-COPING SKILLS - Those skills which enable a person to perform in the roles of individual, citizen, consumer and producer.

MASTERS - (When referring to printed or photographic materials) Refers to the printed or photographic materials which are used in order to reproduce or make copies. The original or best copies, from which copies are made.

MAJOR BLOCK - A complete set of training units or modules of learning covering a major segment or phase of the discipline being taught, for example, in automotive mechanics, power transmission would be considered a major block. In welding, oxyacetylene welding would be considered a major block or phase, etc.

MINOR BLOCK - A segment of training consisting of one or more units or modules of training which covers a major division or topic within a major block. For example, overhauling the differential would be considered a minor block within the major block entitled power transmission.

MIXED (OR MIXING) - (When referring to audio recording) Refers to combining two or more sound sources on to one track of the recording tape. For example, mixing voice "above" music (or music "under" voice). Mixing requires adjustment of the various sound sources to proper levels for best effect.

PACKAGE ENGINEERING - The process of planning packaging of instructional materials for consistency in packages, (for shipping purposes), so that for a given program all audiovisuals may be in package #1; all student materials in package #2 and instructor materials in package #3 -- For example, each set of instructional materials requires empirically determining the sizes of boxes needed, the number of boxes needed, and the most efficient packaging method. The process of determining these factors is package engineering.

PAGINATION - The sequencing of pages in printed documents to provide proper relationships between pages within the document.

PERFECT BOUND - A binding and cover for documents, generally over 100 pages in length, wherein a special gluing process and overpiece, "wrap-around" cover is used to bind and cover the book or document.

PERFORMANCE OBJECTIVE - Sometimes called behavioral objective, unit objective or competency. An objective stated in such a way as to describe the conditions, the task(s) and the standards that the student must be able to operate under and achieve to verify mastery or attainment of the objective(s). A verbal description of the degree level of knowledge or skills to be acquired by the student for any given unit of training. It must also clarify what measurement criteria and conditions will exist to verify the student's achievement of the desired degree or level of learning.

PERFORMANCE TEST - Sometimes called a performance checklist, instructor checklist, or product checklist. A type of criterion-referenced test that requires the student to actually do a task, under the conditions and at the standard specified in the performance objective. A test entailing not only the ability to answer questions, but measuring the student's ability to operate, manipulate and/or perform a given task, as specified, as well.

PITCH - (When referring to typing) Refers to the number of characters per horizontal inch.

PLASTIC-WRAPPED - (When referring to curriculum materials developed by the state) Indicates a heavy "shrink-wrapped" stack of pages or printed materials, wrapped in plastic for protection and shipping purposes.

PROGRAM (OR TRAINING PROGRAM) - Generally, all of the training available for a given discipline of curriculum. The program may be considered to be comprised of all the student and instructor software, the facilities, the instructor, the equipment and all items and personnel required to carry out a training program for that discipline or curriculum, another meaning is, a planned series of courses.

QUALITY ASSURANCE TRANSMITTAL DOCUMENT - A document used by curriculum or instructional materials developers to affirm that appropriate quality control measures have been used in producing the products prior to being submitted to appropriate state personnel for review. This form shows what is being submitted; who has made the various quality control checks, and the dates upon which those checks were made.

SADDLE STITCHED - A type of document binding for documents, generally less than 100 pages in length, wherein staples are used to hold all the folded pages and the cover together, "at the fold" or center of the document.

SIGNAL-TO-NOISE-RATIO - (When referring to recording) Refers, for the purposes of this document, to the desired audio signal level compared to the unwanted signals on the tape, such as background hum, etc.

"SYNC" PULSES - (When referring to cassette tapes used in audio-visuals) Refers to the pulses put on a separate track from the narration and used for the purpose of controlling the advancement of visual media, such as slides, etc.

TASK- (OR UNIT) - A logically related set of actions required for the completion of a job objective, one basic operation, process, skill or knowledge element for which a person would normally be paid for knowing or doing in industry or employment. The smallest division of work in which a measurable output occurs, a logical and necessary step in the performance of a duty. Sometimes the term task is used in reference to a "unit" of training, or a given learning module or lesson.

TASK-COMPETENCY LISTING - A list which shows competencies versus the tasks of which each competency is comprised: Normally, mastery of two or more tasks are required in obtaining a given competency.

TASK LINKAGE - Refers to the project (or products of the project) that was conducted to identify the relationship between secondary occupational clusters and postsecondary specialized programs. The task was used as a common denominator.

TEXT LISTING SHEET - An information document supplied with a set of curriculum or instructional materials which delineates all the texts used in the program. The editions, publishers and authors are also given.

UNIT - One module of I.I. training materials, generally covering one learning task and programmed on one unit sheet.

UNIT SHEET - (FLOW CHART, OR LEARNING ACTIVITY SEQUENCE SHEET) - The guide sheet used by students to find out the sequence of learning activities they must follow to complete the unit they are studying. This sheet also defines the types of learning activities involved.

VCC NUMBERING SYSTEM - The state system of 7-digit numbers used for numbering audiovisuals which identifies the programs, the presentations within the programs and the slide number within presentations.

TERMS - PART TWO

A/Vs-AUDIOVISUALS - May refer to any picture and/or sound media. (ie. slides, tapes, filmstrips, 16 mm films, etc.)

CHECKPOINT - A student-instructor interface point wherein the instructor may give the student a test, perform a demonstration, or simply provide the student with additional needed information or instructions. Also a checkpoint may be used for motivational purposes.

CURRICULUM GUIDE - A document containing the objectives, content, organization and structure of an instructional program. It is designed for use by administrators, instructional supervisors and teachers.

DUTY - One of the distinct major activities involved in the work performed. A compilation of related tasks.

"HANDS-ON" - Statement implying the student is physically involved in a learning activity.

INDIVIDUALIZED INSTRUCTION (I.I.) - A system of instruction allowing a student to progress at his/her fastest rate.

JOB - A specific area of specialization within an occupational field consisting of several closely related duties for which a person would expect to receive remuneration. Should be identified by DOT code.

JOB SHEET - (OR OPERATIONS SHEET) - A project of a performance nature. Generally performed by the student in a lab or shop type environment or in a specialized work area.

LIVE WORK - Generally refers to items brought into the course area for repair or adjustment. Examples of live work might be automobiles, radios and TV's, air-conditioners, etc. Another form of live work would be patrons visiting the cosmetology department to receive permanents or other services.

OCCUPATIONAL CLUSTER - A group of occupations sharing a common core of competencies. Georgia's comprehensive high school vocational program is organized around this concept.

OCCUPATIONAL INVENTORY - A listing of tasks to be performed in a particular occupational area, grouped under duty classifications.

O.E. - Refers to the U.S. Office of Education. O.E. codes are a classification system (taxonomy) for occupational education programs.

OPEN ENTRY - Term meaning that a student may enter the prograam at any time and does not have to wait for quarter or semester breaks.

OPEN EXIT - Term meaning that a student may leave a program any time he/she completes occupational objectives.

PERFORMANCE GUIDE - A series of steps arranged in a sequence which when completed may result in the performance of a task. Also called teaching steps.

PROGRAM OBJECTIVE - The outcome of a prescribed program of instruction. Usually expressed in terms of the occupation or job for which training is designed. D.O.T. codes are frequently used to identify program objectives or student exit points.

SELF-PACED - Refers to a student moving through the prescribed training program at the fastest pace at which he/she can meaningfully learn.

SEQUENCING - Putting any set or series of learning activities or tasks into proper order or sequence. Normally arranged from simple to complex within groupings or blocks.

SOFTWARE - Written or printed materials, slides, filmstrips, tapes, etc. When used in conjunction with computers - means programs and accompanying documentation for computers. Software may be stored on cassette tapes, discs, etc.

STUDENT MANUAL - A document designed for use by students in a specific instructional program. It contains unit sheets, references, operational procedures, job sheets, etc.

UNIT GUIDE - A curriculum guide sheet that lists a task and objective with the instructional activities,instructional materials, evaluation and approximate time required for a student to successfully complete the task.

V'TECS CATALOG - A comprehensive collection of performance objectives, performance guides, criterion-referenced measures and related data. Organized by a job structure or career ladder within a domain of interest.

Federal law prohibits discrimination on the basis of race, color or national origin (Title VI of the Civil Rights Act of 1964); sex (Title IX of the Educational Amendments of 1972 and Title II of the Vocational Education Amendments of 1976); or handicap (Section 504 of the Rehabilitation Act of 1973) in educational programs or activities receiving federal financial assistance.

Employees, students and the general public are hereby notified that the Georgia Department of Education does not discriminate in any educational programs or activities or in employment policies.

The following individuals have been designated as the employees responsible for coordinating the department's effort to implement this nondiscriminatory policy.

Title II - Ann Lary, Vocational Equity Coordinator
Title VI - Peyton Williams Jr., Associate Superintendent
of State Schools and Special Services
Title IX - Myra Tolbert, Coordinator
Section 504 - Jane Lee, Coordinator of Special Education

Inquiries concerning the application of Title II, Title VI, Title IX or Section 504 to the policies and practices of the department may be addressed to the persons listed above at the Georgia Department of Education, Twin Towers East, Atlanta 30334; to the Regional Office for Civil Rights, Atlanta 30323; or to the Director, Office for Civil Rights, Education Department, Washington, D.C. 20201.